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SOUTHERN RHODESIA
GAZALAND
(Bilini)
EAST AFRICA
Limpopo
River
Messina
(Gneiss)
(Schists)
Ba - Venda
Punda Maria
Mopani dwarf Forest
(Diabase)
(Ryolite)
Zoutspanberg Mts.
Pafuri R.
Louis Trichardt
(Granite)
Shingwedsi R.
Palms
Mbudhlu
Malunzane
Klein Letaba R.
Drakensberg
Zoekmakaar
SPELONKEN
Groot Letaba R.
Ba - Hlengwe
Tropic of Capricorn
ZOEKMAKAAR
Gravelotte
Leysdorp
Selati R.
KOMATI
River
Thorn Bush
ROVINCE

THE LOW-VELD: ITS WILD LIFE AND ITS PEOPLE

THE LOW-VELD
(*Photo by M. Dent*)

THE LOW-VELD:
ITS WILD LIFE AND ITS PEOPLE

BY
LIEUT.-COL. J. STEVENSON-HAMILTON
Author of "Animal Life in Africa"

WITH FOREWORD BY
LT.-GEN. THE RIGHT HON. J. C. SMUTS, P.C., K.C.

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TO THE GUARDIAN SPIRIT

OF THE

LOW-VELD

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PREFACE

The writer who essays to describe in detail a certain country or area cannot reasonably expect his public to be attracted equally by all the subjects which the work must perforce embrace. Each reader will naturally turn to such chapters as may happen to appeal to his or her interests, and will only hastily glance through or altogether omit those whose headings indicate contents less alluring. In the following pages, though it has been impossible altogether to avoid technical detail, yet it is hoped that a sufficiently varied fare has been provided to suit the tastes of all readers.

Pronunciation of Native Names

For the benefit of such readers as may not happen to be acquainted with the orthography and pronunciation of the native languages of South-East Africa, I have ventured to include the following notes.

Generally speaking every letter of a word ought to be more or less pronounced, but to assist euphony a syllable is sometimes slurred, as, for instance, when " ng " comes before " w " ; thus " ngwanetsi " is pronounced very nearly (though not quite) as if the " ng " were not present;

" g " is always hard as in " give " ; " hl " forms a sound similar to " ll " in Welsh, and the stronger form of the same sound is expressed by " dhl " ; " c," " q " and " x " in the Zulu tongue are varying clicks made with the tongue against the teeth, palate and back of

mouth respectively; "r" is guttural in Zulu, but the Basutos and some of the Thongas trill this consonant as is done in Scotch.

Other consonants are pronounced as in English.

The vowels are sounded as follows: "a" as in "father"; "e" as in "where"; "i" as in "ravine"; "o" as in "oar"; "u" as "oo" in "moon."

The accent is practically always upon the penultimate syllable of any word.

Final "e" after a consonant is practically a mute.

"T-h" is pronounced with the letters separately; there is no sound corresponding to the English "th."

FOREWORD

COLONEL STEVENSON-HAMILTON has asked me to write a short Foreword for his book on the Transvaal Low-Veld, and I consider it a privilege to comply with his request. He has identified himself with that corner of South Africa as no other man has done. For twenty-six years now he has been in charge of it, and his efforts on behalf of its fauna have resulted in the statutory establishment of the Kruger National Park, which will ever remain a monument to him personally. No one can speak of that area with greater authority or more intimate knowledge. He is a lover of the Low-Veld and all its ways, and as such he is specially fitted to be its interpreter to all lovers of Nature and of the wild things which become ever more rare and precious with the ruthless march of our civilization. His well-known book "Animal Life in Africa" has shown how curious and accurate an observer he is of the life and habits of our wild animals. And this book will show the same insight and intimate acquaintance with our Low-Veld as a whole.

Wild Africa makes a very subtle appeal to our emotions, and fortunately for us much of Africa still remains wild. Civilization has barely touched it at a few selected points, and in the course of the ages the contacts of Africa with civilization have never been permanent or long-lived. After a casual acquaintance with her sister continents she has always shaken herself free and returned to her wild ways. Her spirit has been alien and aloof from that of the rest of the world, and her charm continues uncontaminated by the conventions of civilization. The European invasion which began in more recent years has to some small extent affected her peoples; her wonderful fauna has suffered severely at the hands of

civilized man ; but in her heart of hearts she is and remains wild and free and unaffected by the invading influences.

Nowhere is that mysterious presence of Wild Africa felt more deeply than in the Transvaal Low-Veld described in the following book. In spite of the railway which crosses it, and the few white overseers who guard its animal and human denizens, it remains one of the most virgin corners of this continent. The tourist who visits it under the excellent arrangements which the South African Railways make, will see there probably the most plentiful and wonderful collection of wild game which can to-day be found in the wide world. To the lover of plants it presents an almost equal attraction. And in the tremendous escarpments which flank it in the mountains of Pilgrim's Rest in the west, the Barberton mountains in the south, and the Cloud Mountains (Wolkberge) further north, will be found some of the most magnificent scenery of the whole African continent.

But greater even than its wonderful fauna, its sub-tropical flora, its unrivalled scenery, is the mysterious eerie Spirit which broods over this vast solitude, where no human pressure is felt, where the human element indeed shrinks into utter insignificance, and where a subtle Spirit, much older than the human spirit, grips you and subdues you and makes you one with itself. To those who wish to experience a thrill—a thrill which is unlike any they have ever experienced before—I venture to recommend a visit to this secluded home of the Earth Spirit, which Colonel Stevenson-Hamilton has made the subject of his book.

J. C. Smuts.

THE LOW-VELD:
ITS WILD LIFE AND ITS PEOPLE

INTRODUCTION

As ancient Gaul was divided into three parts, so the Transvaal Province of the Union of South Africa is divided into three zones of altitude, known respectively as High, Middle, and Low Veld. The first includes land higher than four thousand feet above the sea, the second that between four thousand and two thousand feet, and the third all country below the two thousand feet level. Each of these zones possesses its own characteristic floral types, though where the descent is gradual there is naturally no clearly cut dividing line between them. In some places, however, there occurs an almost sheer drop towards the east from the high central table-land to the coastal belt, and where that is the case Middle-Veld becomes practically eliminated. It is not unusual to hear an altitude of three thousand feet referred to as "Low-Veld," but there is no justification for the assertion, since the general floral and climatic conditions existing at that height have hardly anything in common with those of the low country; Middle-Veld conditions, indeed, begin to appear at fifteen hundred feet; the land commences to rise sharply towards the west, and with every mile of ascent a change may be noted in the environment.

The Low-Veld of the Transvaal lies approximately between the twenty-second and the twenty-sixth parallels of south latitude; in its northern part it extends from about the thirtieth to midway between the thirty-first and thirty-second meridians of east longitude, in the south tapering back nearly

to the thirty-second meridian. Bounded on the north by Rhodesia, and on the south by Swaziland, its total length is some three hundred miles, and its average width, from the Lebombo Hills (which form the frontier with Portuguese East Africa) in the east, to the foot of the Drakensberg escarpment in the west, is about seventy miles. In natural features and climate, as well as in characteristic fauna and flora, it differs so profoundly from the often closely adjacent plateau zone, that the two areas might well be situated in widely separated countries, and, indeed, in far different latitudes. While the Drakensberg escarpment attains an elevation of some seven thousand six hundred feet at its highest point, Komati Poort, lying under the Lebombo Hills, seventy miles distant, is only six hundred and twenty feet above sea level. A mean altitude of roughly six hundred feet is maintained along the base of these hills as they trend northward; westward the land rises gradually to a height, just below the Drakensberg foothills, of fifteen hundred feet. This is, strictly speaking, the western limit of the genuine Low-Veld.

As might be expected from its latitude and elevation, the Transvaal Low-Veld is sub-tropical in character; in fact, geographically and climatically it forms a portion of that Moçambique tract of tropical Africa which persists along the east coast as far as the north of Natal. It is one of the few parts of the Union of South Africa which has, so far, largely evaded the influence of European civilization, and for the most part remains in its primitive state—a mysterious waste of virgin bush, inhabited by untutored natives; the last refuge of South Africa's wild fauna; the site of the great Kruger National Park.

A little more than a generation ago the Low-Veld was a closed book even to the South African public, visited during a few months of each year by hunters, who steadily drove the game eastwards; for the rest abandoned to natives, and to the few storekeepers and other Europeans ready to brave the dreaded climate. The Low-Veld has never yet found a chronicler. The writer, therefore, in virtue of twenty-six years spent in administering its natives and in caring for its

wild life, has ventured to essay the task of describing this subtly attractive region, which in the near future is likely to become a popular resort for tourists and holiday-makers, both from South Africa and from overseas.

In his Foreword General Smuts has aptly referred to " the mysterious eerie Spirit which broods over this vast solitude." Few, indeed, can visit the Low-Veld, even for a short time, without in some measure coming under the influence of that strange force. By turns gentle and soothing, hard and cruel, always baffling, mocking, and yet binding, the Spirit of the Wild is essentially feminine. Those who would successfully woo her must possess qualities of mind and body not given to all. Moral and physical weaknesses are sternly punished by her, and, like all else worthy of achievement, her conquest takes time and demands perseverance ; but, once fairly won, she holds her successful suitor in thrall so fast that he remains her lover until he dies.

This book lays no claim to finality. Every year, nay, every day, serves to demonstrate how much still remains to be learned, and to render an exact and complete account of every subject with which it deals would imply a specialized and life-long study of each. Yet, *labor ipse voluptas*, the writer has endeavoured, by every means at his disposal, to acquire a catholic knowledge of all matters concerning the country which has been his home for so many years. A good deal of the information concerning natives, animals and plants is original, and it is hoped may be found interesting by the general reader.

In conclusion, the writer would like to thank Messrs. H. C. Wolhuter and C. R. de Laporte, of the staff of the Kruger National Park, for their helpful notes regarding native trees and rock formations, subjects in which they are, respectively, experts. He is also deeply grateful to Lt.-Col. F. C. Hoare, C.B.E., of the South African Air Force, for allowing him to reproduce some of the charming photographs of wild animals taken while he and the writer were in camp together during the South African winter of 1926.

PART I

NATURAL FEATURES

CHAPTER I

GENERAL CHARACTERISTICS OF THE LOW-VELD

Mountains—Rivers—Rainfall—Temperature—Prevailing winds—Storms—Fever—Animal diseases—Roads—Railways

A HUNDRED odd miles westward from Delagoa Bay, the great interior table-land of South Africa falls away precipitously, in a huddle of cliffs, rocky terraces, and wild bush-clad gorges, towards the low coastal region. On an enormous scale this eastern face of the Drakensberg might be compared with a ruined wall, of which the upper portion has fallen over and formed a *glacis*, so chaotic seems the welter of broken country as viewed from the summit of the escarpment. Actually the first impression of savage desolation is in part misleading, for between the hills are hidden narrow, but fertile and well-watered valleys, which support a considerable native population. This is the gateway to the Low-Veld.

The traveller approaching the latter at the point where the change from plateau conditions is most sudden and most strongly marked—that is, towards its southern extremity—finds as he journeys eastward the undulating country becoming more and more broken, until at last grass-clad hills rise on all sides of him. Should he ascend one of these and direct his gaze backward whence he came, he will see, stretching away, beyond range of vision, waves of bare rolling veld, dotted with homesteads, each of them marked by its little surrounding grove of gum trees—a peaceful scene. But when he turns towards the east the view is startlingly changed. Almost from his feet the land falls away steeply in precipice and rugged kloof which, four thousand feet below, merge into a jumble of broken hills, and these again into what appears to be a perfectly flat and forest-covered plain, stretching like a sea

to the far eastern horizon, where, dim with distance, may just be discerned a pale violet line, which is the Lebombo Hills.

Having descended, in continuance of his journey, by one of the few difficult and steep mountain passes, he arrives amongst the foothills; land of grotesque kopjes, bushclad ravines, and clear babbling streams, which, filled with the ardent exuberance of youth, noisily thread a tortuous way between bush and boulder, heedless of the fate awaiting them a little later from the scorching sun and the engulfing sand of the Low-Veld. He passes by huge blocks of naked whale-backed rock, pierced by caves which long ago gave shelter to primitive bushman hunters, and, having left behind him the great isolated peak of Logogote, standing like a sentry on guard, he discovers that what from his previous commanding position had appeared to be a level bush-clad expanse, is in reality a succession of undulating ridges and deep-cut water-courses. Covering all is a garment of dwarfed and mainly deciduous forest, relieved here and there by the larger, and usually evergreen trees which grace the banks of the rivers and watercourses.

Features of this country are the rocky outcrops, which, singly or in groups, here and there spring up suddenly and surprisingly, and are the homes of colonies of baboons and of graceful klipspringer antelopes. As he proceeds, the bush becomes denser and more thorny, the country drier and stonier until just before he reaches the Lebombo the view once more opens out into park-like flats, dotted with trees, and covered in summer with breast-high grass. The Lebombo Hills derive their name from that of a prominent local chief, who, either in his own person, or in that of an immediate descendant, was still ruling when the Portuguese records commence over four hundred years ago. They are, in so far as they bound the Transvaal, waterless, stony, savagely wild, and totally uninhabited. In some places almost disappearing, they are to be traced only by low undulations; but in others they rise to a height of several hundred feet, and the gorges abutting on the Crocodile, Sabi, Olifants and other rivers, as they thread their

way into Portuguese Territory, are often bold and impressive.

The Low-Veld is bounded and drained by several large perennial streams—Limpopo, Pafuri, Letaba, Olifants, Mandhlamari, Sabi, Crocodile, Komati, and Lomati. Secondary rivers, which though not running throughout the year, carry large pools and sometimes long stretches of permanent water, are, among others, the Shingwedsi, Imbabate, Ngwanetzi, Manzemntondo and Mbeamide. There are also a multitude of dry watercourses, ranging from the size of considerable rivers to that of small drains, which carry water only during the rainy season, and then but for a few days after each deluge. In the larger of these, during the remainder of the year, water is found with difficulty in pools—which frequently dry up towards the end of the winter—or by digging in the sandy beds. All the rivers run over floors of granite sand, which alternate with natural dams of granite or basalt. The brims are usually margined by dense fringes of tall reeds, while the beds of many of the drier watercourses are choked with masses of handsome dwarf palms.

The currents of the perennial streams are fairly swift. There are rapids where the rivers tumble over rock bars, and again there occur long reaches of placid water, where the oily current glides imperceptibly along, and where the deep undercuttings of the banks are haunted by large crocodiles. The dark green of the forest trees, backing the lighter shade of the reed fringes and densely wooded islets, lends to the Low-Veld rivers an aspect singularly fascinating, and relieves a landscape which in some respects tends to be monotonous. Of the larger rivers the Olifants and the Komati probably carry most water. For all its eight hundred yards of width, the Limpopo runs nearly dry at the end of each winter, and may then be waded with ease. The Olifants, on the other hand, with some six hundred feet of stream width, comes down deep and swift, and, especially after having assimilated its main affluent, the Great Letaba, a couple of miles west of the Portuguese boundary, is a very impressive river. At this point a gorge of remarkable grandeur and wildness shelters the united rivers

in their passage through the Lebombo. Frowning precipices, their summits crowned with dark green bush, confine the stream within a channel of no more than sixty feet in width, through which the river now glides inky black, and now crashes in cascades of snowy foam, as some rocky impediment is encountered. When the Olifants and the Letaba are both coming down in full flood, this gorge presents a spectacle not easily to be forgotten.

The water found in the non-perennial streams of local origin is impregnated with salt, and is known in South Africa as *brak ;* but though of unpleasant taste, it produces no ill effects, and animals drink it readily. To this quality of the water is due the existence of the many long, treeless strips covered with coarse grass, which occur all over the Low-Veld, and become swamps after rain. The subsoil in these strips is brackish, and fatal to tree life, but the rains serve to wash the salt from the surface sufficiently to allow the soil to support weeds and grass. Lakes and ponds are conspicuous by their absence, and depressions filled with water by the annual rains are nearly always dry by the end of August in each year.

All the rivers and pools are well stocked with fish of many kinds, representing both the surface and the coarser bottom types ; the almost amphibious berber is found embedded in the mud of many almost dry waterholes : there are otters, crocodiles, monitor-lizards, water-tortoises, crabs, and plenty of most unpleasant leeches.

Almost every rainy season the rivers come down in flood, and then the little dry ravines turn into roaring torrents, many feet deep, each bearing away its quota of soil to the ocean. The larger rivers, when in spate, carry along huge trees, logs, and debris of every kind gleaned from their banks. About once in every five years comes a really heavy flood, and, at long intervals, one of such magnitude that it is remembered and spoken of for many years afterwards. In the exceptionally wet autumn (southern autumn) of 1925, the Sabi River rose to a height unknown for over thirty years. The writer's garden, thirty feet above the normal level of the river, and fifty yards from its brink, was washed away : native huts

built too near the river disappeared: the flood rose to within ten feet of the permanent way of the Sabi railway bridge, and there was considerable loss of life. It was one of the most impressive sights possible. The river, normally about two hundred feet in width, and flowing easily among sandbanks and jutting rocks, roared down in a billowing torrent, three hundred yards wide, its breast heaving in vast curling waves, and the limit of the flood extending so far up the banks that the nearer trees in the encompassing bush were immersed to half their height. On the subsidence of the flood huge piles of reeds and uprooted trees were left far away from the river, piled in heaps often of ten or twelve feet high. Great sections of the bank disappeared entirely, and the appearance of the river had in some places, owing to extensive washing away of the banks, altered beyond recognition. Shallow drifts and deep channels had changed places; where it had been possible to cross knee-deep, great holes had made their appearance, to be traversed only by swimming; extensive sandbanks had formed where once were deep pools. But even lesser floods are by no means of annual occurrence; several years, indeed, frequently pass during which the rivers barely rise above normal. Low-Veld floods depend less upon the local rainfall than upon that among the mountains, where for the most part the streams have their sources, and are mainly due to the greater precipitation which exists there during the wet season.

The climate of the Low-Veld is practically tropical in character, and the seasons are almost exactly the converse of the similar European periods. Thus, spring officially begins on 22nd September and lasts till 21st December; summer from 22nd December till 21st March; autumn from 22nd March till 21st June, and winter from 22nd June till 21st September. The rainy months are from October until March, usually with light rain in September and April, an occasional shower in May and practically no rain at all in June, July, and August. Unfortunately the rain is not evenly spread out over the period of its incidence; but tends to descend in heavy deluges, which are succeeded by considerable spells of perfectly dry weather.

It has been noticed in the course of twenty-six years that there is some measure of compensation in connexion with rainfall. Thus, a severe drought early in the season is likely to be followed by heavy rains later, and vice versa, and a very wet year is almost sure to be succeeded by an unusually dry one. Now and then it happens that no rain at all falls between the middle of March and the middle of October, or again it may be that after an exceptionally dry summer a lot of rain will come down in May; perhaps the so-called "first rains" of October to December may fail altogether, or there may be good downfalls during those three months, and hardly any later.

Naturally such climatic vagaries are most trying to the agriculturist. If, tempted by promising showers in October and early November, he plants at once, perhaps December may pass entirely rainless, and the devastating heat of the sun at the time of the summer solstice will completely wither his crops. Should the season open dry, and hardly any rain fall before Christmas, he may be induced to put in his seed along the river banks, in order to make use of the moisture always there permanent. Then, just as his grain is beginning to mature nicely, in January or February down comes a heavy flood to carry away the whole results of his labour. To the writer personally it has never seemed advisable to plant before the beginning of January. In the Low-Veld there is no cold weather until June, and consequently the growing season may be considered to persist up to the middle of May. The total amount of rain which fell at Sabi Bridge during the sixteen years through which complete records are available was 366·5 ins., or an annual mean of 22·9 ins. Rain fell on an average on fifty-seven days in each year; the largest number of rainy days in one year having been seventy-one, in 1908, and the smallest thirty-three, in 1922. The highest annual rainfall was 40·9 ins., in 1918, and the lowest 9·7 ins., in 1922. Although there are early spring, late autumn, and even sometimes winter showers, nearly all the rain falls during the six months October–March, and the average fall of these six months in relative priority is as follows: March 4·59 ins.,

February 4·48 ins., January 4·21 ins., December 3·33 ins., November 2·83 ins., October 1·99 ins.

Although, compared with that of many other tropical countries the rainfall is considerable, these short-lived deluges, temporarily flooding the whole surface of the ground, are of small lasting value, since the water, instead of sinking into the earth, is at once borne away by a thousand rivulets merely to swell the river torrents. The result of this, coupled with the evaporation due to the great heat of the sun in the hot season, is that a fall of rain confers on the Low-Veld only about half the benefit that a similar fall would bestow were the climate a temperate one. Except in the case of thunder-storms, the clouds nearly always sweep up from the south and south-east, and precipitate on the coast lands ; then, diverted at an upward tangent by the Lebombo Range, pass high over the great thirsty bush-clad plain of the Low-Veld, and are again caught by the five thousand feet escarpment of the Drakensberg. Thus, while it is often raining heavily to the east, in Portuguese Territory, and the rivers are coming down in spate from the Berg to the west, the Low-Veld atmosphere remains dull, enervating but perfectly rainless.

From December until the end of April the climate normally is relaxing, the air heavily charged with moisture, even though but little of the latter may condense into rain. While the rainy is also the hot season, the cold months coincide with a largely anticyclonic period from the end of May to the middle of September. Complete records kept for ten years at Sabi Bridge—Long. E. 31° 42′, Lat. S. 24° 59′ ; one thousand feet above sea level, and eighty-five miles from the sea—show the mean day shade temperature during that period to have been 85·9° Fahr., and the mean night one 56·7°, giving a general mean of 71·3° Fahr. The thermometer showed its highest shade record of 112·1° on 26th November, 1912, and its lowest of 27·5° on 5th July, 1911. The average proportion of clouds to clear sky was four-tenths throughout the ten years. The hottest month was December, with a mean day shade temperature of 92·9° while July was the coldest with 41·1° mean ; but taking day and night together, January showed

the highest mean temperature with 79·4°, and June the lowest with 59·6°. The hottest place in the Low-Veld, and indeed in the Union of South Africa, is Komati Poort, which lies at an altitude of six hundred and twenty-five feet above the sea, the mean temperature averaging there about five degrees more all the year round than at Sabi Bridge.

Frost in the vicinity of the large perennial streams is liable to occur for an hour or so before sunrise, from the first week in June to the end of July. It is irregular, in some years not occurring at all, and it is unusual to experience, in any one year, more than two degrees on half a dozen occasions ; but this is quite sufficient to blight all tropical garden produce left unsheltered. This low temperature is evidently due to the proximity of considerable bodies of water, for among the Drakensberg foothills, a thousand feet higher but away from the rivers, frost is entirely unknown. Late autumn rains usually imply a cold winter, while a dry summer is the forerunner of mild and often cloudy weather during June and July. The sun rises about 5 a.m. and sets about 7 p.m. at midsummer, and at midwinter it rises about 7 a.m. and sets about 5 p.m.

The prevailing winds are alternately from the south-east and from a few points on each side of north : a purely east wind is rare, and it blows from the west only now and then in presage of local thunderstorms, which occur most frequently at the beginning and end of the rainy season—October to April. Though, owing to the absence of iron ore in the Low-Veld, the danger from lightning is less than in some parts of the High-Veld, nevertheless it is often very serious. In November, 1925, after a long spell of hot dry weather, a storm swept over the middle area of the Low-Veld from north-west to south-east : on a front of barely three miles the wind blew with the force of a hurricane. It lasted less than an hour ; but after it had passed, its route was very clearly defined by the uprooted and broken trees, and the general air of desolation. Native huts in the line of the storm were all unroofed, and the earth was covered with broken tree-limbs and small branches. While it lasted the roll of the thunder and the flashes of

lightning were practically continuous, and a great many trees were struck.

It happened that the writer was caught in this storm while riding back to camp, and so is able to speak from personal experience of its severity. Best speed was, of course, made for home. Luckily, the wind was dead astern: had it been head-on nothing living could have faced it, and abeam, the horse would certainly have been blown over. The gallop amidst the flying branches and crashing trees, with lightning playing all round, was a really exciting experience. Wind storms of such severity are, however, the exception, and so are hail storms, though occasionally these too visit the Low-Veld, and it is then not uncommon to pick up hail-stones, in the form of jagged blocks of ice, an inch in diameter. A visitation of this character strips the fruit trees clean, and does more damage in ten minutes than all the living pests together can effect in a year.

From about the middle of May to the end of August, weather conditions are very nearly ideal. June and July usually show a procession of perfectly cloudless and almost windless days, when the thermometer seldom rises above 80° Fahr. in the shade, and the air is so dry and bracing that the sun is hardly felt at all, while, after it has set, the atmosphere at once becomes so cold that thick clothes must be put on. Towards the end of August windy weather is often experienced, and in September it becomes rather hot, with possible rain showers late in the month. October is usually very hot and dry; everything much parched, and crying out for rain. Already in the early days of the month the trees are throwing out buds and blossom in anticipation of refreshment. It may rain in October, but usually the first showers of consequence are deferred until November, after which the heat becomes much tempered. The grass springs, and the leaves shoot out; in fact November may be considered in many ways one of the most pleasant, as it is certainly the most beautiful month of the year; it is just a first taste of the glories of summer, without its blistering heat, torrential rains and swarming insect life.

The wind conditions generally seem to observe a very

regular course throughout the year, modified only by the season ; that is to say after the wind has been blowing steadily from the north-north-west for three or four days, it suddenly veers round to the south-east. If it be summer, the hot north wind has become unbearable by the fourth day, and the succeeding contrary one often brings up a thunderstorm. If it be winter, the north wind is just pleasantly warm, and the south-east one very cold, bearing with it clouds, which do not, however, precipitate rain. After two or three days of rainy or cloudy weather, as the case may be, the wind veers round again to the north, and the cycle repeats itself. But in the quiet anticyclonic weather of June and July, it is not uncommon to experience several weeks of unbroken windless and cloudless weather.

The greatest drawback to the Low-Veld is malarial fever. Twenty or more years ago the country was regarded, between September and May, with positive terror by the whites of the plateau ; indeed, it was said to be certain death to venture down there during the summer months. The experiences of the staff of the Game Reserve and of others have proved the fallacy of this extreme view. The former have lived under the hardest conditions in all parts of the fever areas, if not with immunity, at least without the immediate disastrous results predicted. Their experiences have, in fact, been much the same as those of other officials scattered through the various European possessions of east, west and central Africa. Partly from their example, and partly because there occurred a cycle of abnormally dry and consequently fever-free summers—added to the active advertisement of those with land to sell—the pendulum soon after swung right to the other side of the clock. It was said publicly that " the country was just as healthy and in some respects more healthy than any other parts of the Union." Such statements were, of course, just as much exaggerated in one direction as the old idea of certain death was in another. It was stated, for instance, that with proper housing, drainage, cultivation and so on, fever would be eliminated. Why ? Fever can be eliminated only by getting rid either of the source of the infection or of the carrier.

The former, as is well known, is the blood of practically the whole native population, and it is doubtful if even the strictest segregation would succeed in extirpating the latter from the Low-Veld. As regards the carrier—the mosquito itself—Johannesburg and Pretoria may be regarded as having attained a degree of civilized amenity which the Low-Veld can scarcely be expected to reach in our time, even in the view of the most sanguine promoter of its interests, and it has yet to be recorded that the mosquito has been eliminated from either of those cities. That the *anopheles*, the fever-bearing variety, does not flourish in the plateau country is a mere detail. Its eradication from the Low-Veld will, it may confidently be predicted, prove a tougher problem than that of *culex* from the plateau towns. Nor is it to be hoped that the erection of mosquito-proof houses is going to solve the problem. Even supposing that mosquito-proof mesh always remained, under stress of veld conditions, as perfect as when put up, I have personally never yet known a mosquito-proof bungalow which entirely served its purpose in this respect; the best it can do is to mitigate the annoyance of these and other insects, not to annul the risk of fever. Nor is it to be expected that the hard-working settler of the future will always confine himself within his insect-proof house each day before sundown.

Apart from fever altogether, which is an infliction that any reasonably strong and healthy man or woman can learn to endure philosophically, the great heat and humidity of the summers are not those best conducive to the building up of a stalwart white race. All white men, even the strongest, deteriorate physically after a few years spent continuously under tropical conditions. The effect upon women is still greater, and white children ought never to be brought up in such surroundings, for body and brain, without doubt, lose sap and vigour. The sooner it is generally recognized that the Low-Veld is a part of tropical Africa, and that below fifteen hundred feet it is essentially a black man's and not a white man's country, the better it will be for both races.

The very wet season of 1924-25 dealt a severe blow to the protagonists of Low-Veld salubrity. Practically all the

permanent residents were laid up one or more times from malaria; in the Komati Poort area alone blackwater fever cases numbered 14 per cent. and deaths 7 per cent. of the total white population. Blackwater, of course, which is a little understood, and very deadly form of malaria, fluctuates like ordinary types of the latter, according as the season is wet or the reverse, but it usually claims a few annual victims. Resident natives are subject to fever almost as much as acclimatized whites, and also occasionally, though very rarely, develop blackwater. Natives from the High-Veld cannot resist the climate at all, and go down quicker and suffer more than people of European race. During the early days of railway construction on the Pretoria-Delagoa Bay line, in 1887, and the Selati line, in 1893, the mortality from fever was very severe among white employees; but since, in those unregenerate days, bad whisky, in unlimited quantity, was considered the best fever preventive, it is perhaps not surprising that the death-rate in this tropical country was so high. The decrease of fatalities from fever of recent years may be ascribed fully as much to the more temperate manner of living as to the scientific precautions which are now more or less universally adopted.

Horse-sickness is believed to be caused by a mosquito, and is so virulent that practically no "unsalted" or unimmunized horse or mule can escape attack at any time of the year. A horse or mule "salted," implies one which, having previously contracted the disease, is amongst the lucky 5 per cent. or 6 per cent. which survive. Not so long ago such an animal was difficult to obtain. Of recent years a system of immunization by inoculation with a serum of the disease itself was discovered after long experiment by Sir Arnold Theiller, K.C.M.G., for long Chief of the Bacteriological Institute in Pretoria. As a result, it became possible to buy unimmunized horses at a low price, have them treated at the Institute, and thereafter to maintain them with perfect safety in the worst horse-sickness areas. Before the introduction of immunization, so-called "salted" horses commanded any price up to £100, a guarantee being given to return the money should the animal die within

he year ; a system not always satisfactory to the purchaser, ince the great majority of the horses thus disposed of were not n fact immune from horse-sickness, and it was seldom racticable to recover from the vendor any of the price paid o him. Mules are less susceptible to the disease than horses, while donkeys are practically, though, in the case of exotic nimals not absolutely, immune.

Horse-sickness is of two types : first, *deng sik*, in which the ungs are primarily affected, and the animal is choked to death y masses of frothy mucus coughed up therefrom ; secondly, *likkop*, when the head swells up, and the horse dies of heart ressure ; of the two, the last is slightly the less fatal. mmunization came too late to be of full benefit, since it oincided with the arrival of the motor car, which has naturally lecreased the demand for horses in the Low-Veld ; otherwise t would have been probably the greatest boon ever conferred pon the farming population of areas subject to horse-sickness. The old idea regarding the disease was that it had something o do with the dew on the grass, and therefore that if kept in he stable until after sunrise, a horse had a good chance of urviving. This was sound, to the extent that mosquitoes re abroad in the early hours of the morning, and that the mell of ammonia in stables is apparently repugnant to them.

Horses also suffer from biliary fever, communicated by a rass tick, a disease which is even more fatal to dogs, and for which the recognized cure is a subcutaneous injection of rypan blue. Cattle are subject to a variety of ills, mainly lue to ticks, and those animals not indigenous to the Low-Veld are often fatally poisoned by a weed known as *slangkop*, rom its resemblance to a snake's head.

Though of late years increasing efforts have been made to pen up the Low-Veld to modern methods of transport, hrough a great part of it primitive methods still prevail. Even now, it contains little in the nature of roads according o civilized ideas, but, on the other hand, the whole area is a etwork of tracks of various kinds, devious and winding to utward appearance but all leading by really the most direct oute to some definite goal. The native track has often been

described ; it winds across country like a snake, with constant twists and turns, each one of which has a history, in that it was originally made to avoid some temporary impediment—a fallen tree, a new made ant-heap, or some other of the thousand and one small obstacles which Nature constantly improvises—but in the end it takes the traveller by the shortest route from kraal to kraal, or from water to water. Then there are the numberless game tracks, so well trodden down as hardly to be distinguishable from those made by human agency, except that they start from nowhere in particular, and seem to end in similar manner.

The old transport road which used to run from Delagoa Bay to the Lydenburg goldfields, though it is more than forty years since it was last in permanent use, may still be traced almost throughout its length. A few years ago a new motor road was being constructed through the hilly country on the western edge of the Low-Veld. Beneath a great mass of undergrowth and recent overlay, a wide hard-beaten track was laid bare, which had apparently been made by the passage, in years gone by, of countless generations of elephants on their way to and from water. That it should have been found in such good condition, or, indeed, have been traceable at all, is remarkable, for the elephant has been extinct in that part of the country beyond the memory even of any native now resident.

The country is fed by two lines of railway ; the main line between Pretoria and Delagoa Bay, and the Selati Railway, the latter branching off at Komati Poort, and running in a north-easterly direction to Zoekmakaar, where it connects with the Pietersburg line to Pretoria. The main line supports a considerable amount of through goods traffic, and runs a mail train to the coast every second day, while the Selati, which until recently did not pay for its upkeep, now maintains a tri-weekly mixed service. Both are Government owned, single 3′ 6″ gauge lines, following, like all South African railways, the contours of the land, and winding sometimes so tortuously that the afternoon sun pours alternately through the right and the left hand windows of the coaches. The speed averages

sixteen miles an hour, and stations are nearly that distance apart. On the Selati, indeed, there is no official station between Komati Poort and Tzaneen, a distance of over one hundred miles, the intermediate stops being at sidings and platelayers' cottages. There is usually one of these employees to each fifteen miles of line, and to keep it in repair he has under him a gang of ten natives, who push the trolley on which the tools are carried, and the white man sits. On the Selati, where there is seldom more than one train concurrently on the line, minor mishaps to the engine are of frequent occurrence. It is true that the train sometimes is able to run punctually, and has seldom been so much as twelve hours late ; but in the winter, when loads are heavy, and there is a certain amount of passenger traffic, the intending traveller may have to wait several hours at some lonely siding before he is able to set out on his journey.

CHAPTER II

GEOLOGICAL FEATURES

Rock formations—Mineral deposits—Siccation and soil erosion—Early conditions

It is perhaps in matters connected with geology that the Spirit of the Low-Veld most delights to mock the stranger.

Glancing at the country for the first time, the new-comer with an eye to business is at once struck by its apparent possibilities. "Here," he exclaims, "is a warm, well wooded land, free from all the winter drawbacks of the bleak High-Veld. It seems to be well watered; grazing is sure to be good; the soil should respond generously to agricultural effort." If interested in mineral speculation, he notes the many promising rock formations, some of which must surely conceal wealth. But should he proceed from theory to practice, whether as farmer or prospector, he becomes quickly disillusioned. The fertile country and the hidden mineral wealth are found to be but figments of the imagination. The lovely palm-clad stream-beds contain only sterile rocks and soft sand. The shallow soil allows cultivated seeds to shoot up merely that they may be burnt by the fierce summer sun. A multitude of insect-borne diseases, and the poisonous *slangkop* weed, kill stock; twenty acres is not too much grazing to allow for one beast. The rocks contain no payable ore; but they lure the wealth seeker by here and there displaying little patches of likely strata, containing indications even of the precious metal itself, just sufficient to tempt the prospector to waste his time and ruin his health in fruitless search.

The Spirit, in fact, is jealous of civilized man's presence

within her demesne. "This Low-Veld," she seems to say, "shall be kept safe for Nature." Nor can it be denied that with the help of those faithful servants, drought, heat and disease, so far the defence has proved successful. Yet undeterred by the misfortunes of others, new-comers still hopefully rush in, confident in making good where their predecessors have failed. The innate optimism of man is nowhere better exemplified than in the repeated attempts to open up the Low-Veld for commercial purposes.

The outstanding geological features of the Low-Veld, between the Crocodile River in the south and the Limpopo River in the north, are the prominence of Archæan granite formations, the absence of stratified deposits, except in insignificant patches, the remarkable faults of the Lebombo Hills, and of Ship Mountain (*Mokhukhwe*), and the sporadic outcrops of bosses, formed of piled boulders, usually grey granitic, but sometimes basaltic, which form isolated hillocks, or groups of hillocks, sometimes of quite considerable height.

In the extreme south-west corner, near Krokodil Poort, the hills are composed of gneiss, apparently of granite origin, inasmuch as the formation merges into Archæan granite northwards along the foothills of the Drakensberg, to and beyond the Sabi River. Excepting Ship Mountain, Makuteni Kopjes, and a few minor outcrops, all the most prominent peaks and hills are of grey granite, and usually show in the form of bosses, such as Pretorius Kop, and the Rhenoster Kopjes on the Selati Railway. From west to east the granite persists, except where it is occasionally intruded upon by basalt, until it forms a semi-contact with the sandstone measures near the Lebombo Hills. The term semi is used, because the granite does not form a complete contact, but is usually separated from the sandstone by a dividing band or intrusion of diabase on the west side of the sandstone. The latter formation is from two and a half to three miles wide, and is bounded on the east by amygdaloid diabase, which continues until it comes in contact with the rhyolite of the Lebombos. Due eastwards from Krokodil Poort, along the Crocodile River, lie schistose rocks, with an approximate strike

east and west, and with a southward dip; they are mainly micaceous and hornblendic in composition. These schists are not more than three quarters of a mile wide north of the river, and they gradually disappear in the vicinity of Pala Siding; they are bounded on the north by gneiss of about the same thickness, which in turn is backed by granite. On the tops of some of the latter hills have been noticed doubtful indications of glacial activity. East of Pala Siding, granite continues until the sandstone is reached in the east, with one temporary intrusion of schists and quartzites.

Between the Sabi and the Olifants Rivers, the rocks display the same general character as south of the former river: granite predominates, while the sandstone belt runs right through from south to north, bounded as before on the east by the amygdaloids. On the Olifants River, however, are found formations of indurated micaceous schists, with hornblende, deposits of mica, muscovite, and various quartz reefs; these extend about as far as the Umklasiri River on the west, where they touch grey granite. North of the Olifants River the belts of sandstone and amygdaloids, the latter here tuffaceous, still persist on the west of the Lebombo rhyolite, which continues to the Limpopo, where it may be seen in the vicinity of the Portuguese post. Westwards is found greater diversity, as the schists of the Murchison seem to run in, almost as far as the Tendi River near Malunzane, in fact till they are cut off by the disturbed country to the east. Along the western boundary of this area occur innumerable quartz, conglomerate, and schistose reefs, with certain mineral indications, which, however, have never hitherto been found to bear fruit.

The rhyolite formation of the Lebombo Hills, the boundary between the Transvaal and Portuguese East Africa, extends from Zululand northwards as far as the Rhodesian border, varying in height from some two thousand feet near Ingwavuma in the former country, to sometimes as little as one hundred feet along the Transvaal frontier. Running in parallel ridges, which are divided by dry torrent beds, the hills cover a width of from one to five miles. They form the southern extremity of a great African geological fault or crack, which reappears

in the Rift Valley of Kenya and elsewhere. In the case of the Lebombo, this crack was filled with rocky debris cast up from the depths of the earth, and in consequence the hills, throughout a considerable portion of their chain, consist of a haphazard jumble of rocks and stones, varying from the size of cottages to that of small pebbles, for the most part angular and jagged, apparently lying just where they fell when heaved up by those earth-shattering explosions of a long past age. Mingled with pitted " pudding " stone, fragments of lava are occasionally noticed, and pieces of detached stone lie on the surface of the ground far out from the base of the hills.

Although at the present day nothing in the nature of volcanic conditions exists, nor are the remains of any craters visible, the eruptions are believed to be geologically recent, and are certainly much later than the coal deposits in the sandstone belt situate near the western bases of the hills, which have been found to be partially overlaid by volcanic debris, carbonized, and of little or no value. Where they bound the Transvaal, the hills are sparsely covered with stunted secondary forest growth, mainly acacias and euphorbias, and are practically waterless, excepting only where the large perennial streams force their way through by gorges sometimes of considerable depth. The general impression conveyed is that during the ages following the cessation of the seismic disturbances deep soil gradually overlaid the stony chaos, and possibly at one time the hills were intersected by numerous perennial streams and covered with primary rain forest. At a later period, when the siccation era had set in, the forest gradually disappeared, whether partially assisted by human agency or not, it is impossible to say. After this, soil erosion commenced, ultimately again exposing the bare stones, just as they had been deposited many ages before. The denudation process is most apparent on the Transvaal side, where there occur many abrupt and stony escarpments, with high cliffs, and wild expanses of jumbled, water-worn boulders, where the larger rivers make their way. The dividing valleys, and the gentler gradients, are clad in a rather scanty herbage, with the underlying stones everywhere obtruding.

On the Portuguese side of the border, on the other hand, the eastern slopes of the hills are often gentle, and clothed with good grass, thus presenting a far less savage aspect than the western faces; while from the bases to the sea spreads a level, fertile country, well watered, and dotted with numerous small lakes and pans, features utterly unknown on the Transvaal side of the Lebombo. Ship Mountain, another volcanic fault, some forty miles to the west of the Lebombo Hills, is a basaltic formation, and acquired its name from its fancied resemblance to the inverted hull of a sailing ship. In the old days of the native tribal wars, its flat top served often as a stronghold for Basuto refugees, who were accustomed, in times of danger, to drive their cattle thereto, and the remains of the stone kraals and defences then erected may still be seen.

The granite kopjes which stud the country south of the Olifants River, sometimes isolated and sometimes in groups, are very interesting formations. They consist of unusually large boulders and slabs of rock, piled one upon another, without any arrangement or indication of stratified formation. The rocks are smooth, rounded and waterworn, while the kopjes themselves, whatever their origin, seem to have attained their present command as the result of denudative processes; that is to say there appears to have been a constant washing away of the soil from the higher level at which it once stood, a process which is still active. Annually more and more rock at ground-level becomes exposed, and even in the course of twenty-five years it has been possible, in different localities, to note how small obtrusions of rock, at first barely showing above the surface of the soil, are now exposed for a foot or more; in fact are on their way to become kopjes, like their elder brothers.

All the larger rock outcrops contain caves, some of them of considerable size, the interiors often filled with the old bones of wild animals, and occasionally also showing signs of human habitation. Entrance to the cavities is sometimes not unattended with risk, since they are favourite hiding-places for black mambas, and on a memorable occasion I had hardly

SHIP MOUNTAIN

A FOREST POOL ON THE MANZEMNTONTO RIVER
(CHAPTER I)

passed within the narrow entrance when one of these big active snakes rushed out headlong, missing meeting me face to face by a few seconds only! The vegetation growing among the boulders is confined to rank grass, a few cacti, and stray parasitic fig trees, which wind in and around the rocks in the most extraordinary fashion, their root fibres probing for the smallest cracks in the stone.

It is possible that the erosive process in the Low-Veld, extended over a very long period, may be responsible for the relative absence of rock strata of lesser age than the Archæan granite. At any rate it is certain that even where the former exist in such formations as might offer hope of discovering precious or base metals, none of these have been found to occur, despite tolerably active search extending over a considerable period of years. With the exception of the Lebombo and other clearly volcanic formations, the last general upheaval of this part of South Africa may have taken place during the Lower Palæozoic, which by some is considered to be the age of the sub-continent generally.

Of alluvial deposits there is no trace; though I recollect one gentleman, apparently unfamiliar with "Afric's golden strand," declaring that as he waded through one of the Low-Veld rivers the "gold dust stuck to his trousers!" Of course wonderful strikes have been reported from time to time; but invariably they have proved to have their source only in the fervid imagination of the most incurable of all optimists, the old prospector, that pathetic industrial pioneer, who spends a life of hardship and squalor in pursuit of a phantom fortune, which, always on the verge of capture, as invariably proves elusive. In his own person the old prospector concentrates as much hopefulness as would serve to speed several ordinary human beings on their way through life. Undeterred by disappointments, he continues steadfastly to pursue his will-o'-the-wisp till it finally dances away, leaving him at last, ill and penniless, to die unattended in the wild bush, or in some miserable native hut. The prizes exist, but they are very rare, and too often a man who has succeeded in some quest, after years of hard work and privation, sees the

substance go elsewhere, and himself left with little more than the shadow.

One of many, but still rather curious in its way, is the story of a certain diamond quest. Somewhere about 1911 an employee of an association recruiting natives for the Johannesburg mines, while stationed in Portuguese Territory, gave shelter to an old and very sick prospector. This man died while still in Mr. W.'s house; but before his death he called his host, and after having told him that he was the one person from whom he had ever received real kindness in Africa, asked for a purse and certain papers to be brought from his kit. The former contained a few small diamonds, which the prospector said he had found shortly before the Anglo-Boer war: he added that the indications being very promising, he had always intended to follow up his discovery; but from one cause and another had been prevented from doing so. The papers consisted of a chart of the locality, with full directions how to get there. Shortly after this the man died, and was duly buried by Mr. W., who lost no time in having the stones examined, with the result that they were officially announced to belong to no known South African diamondiferous deposit. Full of confidence, Mr. W. proceeded to form a small syndicate. The place marked on the chart, close to the Transvaal border, was satisfactorily identified, and the services of a competent prospector, who was allotted a free share in the potential profits, were secured. Equipped with wagon, donkeys, and several months' provisions, the latter set out, and, urged on by the rest of the syndicate, who already in imagination saw themselves driving about in Rolls-Royce cars, he dug up quite a large area of country, not only all about the spot whence the diamonds were stated to have been extracted, but for a good many miles around. His report, at the end of about six months' strenuous work, was that not only could he find no traces whatever of any diamonds, but that none of the country in the vicinity was of a diamondiferous nature; in fact diamonds were about the last things likely to be found in it. Still unsatisfied, the syndicate changed their man and tried again, with precisely similar results. The only practical

outcome, therefore, to Mr. W. and his friends from the gratitude of the dying prospector was that they found themselves a few hundred pounds poorer. Of course, various theories were advanced to account for the failure, none of them quite satisfactory. The existence of the specimens, and that they were of unfamiliar type, disposed of the most natural conclusions. Whatever the explanation, the story shows the promoters of the quest to have had better grounds for confidence than is sometimes the case.

Over a very large proportion of the Low-Veld the soil is poor, shallow and unproductive. Along the banks of the larger rivers the flood deposits ensure sufficient depth to permit of the growth of fairly large trees, and to the west, above the fifteen hundred feet level, to the foothills of the Drakensberg, as well as in places along the hill bases south of the Crocodile, there is often good rich soil. Otherwise, from the Crocodile to the Letaba, there is usually a surface soil seldom exceeding a few feet in depth, which in the central portions consists of granite sand, and beneath it, for another five to twenty feet, lies desiccated granite, superimposed upon solid Archæan rock. Trees must therefore adapt themselves to circumstances by sending out their roots horizontally, a few feet, sometimes even a few inches, beneath the surface of the ground, which under stress of heavy rain and strong wind greatly imperils their security.

Siccation in the Low-Veld keeps pace with soil erosion. There is little doubt that there is less water and less soil than was the case even half a century ago. Sites of abandoned villages, dried-up watercourses, and the statements of the older native inhabitants seem to demonstrate this fairly clearly. Even in the short quarter of a century over which the author's personal experience extends, there has been noticed a progressive drying up of once permanent water supplies, and this despite occasional seasons of heavy rainfall. For instance, in 1902 there existed a pond, or pan, covering some two acres of ground, which even in the dry season held throughout several inches of water. It was said that in former years it had been much larger and deeper, and that winter graziers

and hunters made permanent camps there during the rainless season. As late as 1907 I shot duck on this pan. By 1914 it had decreased to about ten feet of shallow water, which had usually dried up before the end of the winter. When next I saw it, in 1920, it was quite dry; but a growth of long coarse grass, and a few reeds, still marked the centre of the original pan. At the present time there is little to distinguish it from any other grass-covered depression, although unusually heavy storms cause it temporarily to hold water, just as do other depressions. Again *Manzendhlovu* ("water of the elephants"), by which name a now perfectly dry sand bed is known, would indicate that in former days it was either permanently running, or held pools large enough and deep enough to satisfy the water-loving elephant.

There are probably only two factors which prevent the Low-Veld, below a height of fifteen hundred feet, and away from the permanent rivers, from lapsing to arid desert: the bush timber; and the water catchments made all over their feeding grounds by the big game, especially by the wildebeeste. These small catchments, caused by the animals stamping and rolling on the same spots, do an immense amount of good by checking the off-flow of water, and therefore soil erosion. The results of the latter are conspicuous wherever natural drainage exists, and especially wherever the natural covering of bush timber has been cleared away artificially. Possibly, indeed, any considerable removal for commercial or agricultural purposes of the secondary forest, which now covers most of the Low-Veld, might result, below the fifteen hundred foot level, in the exposure of the underlying bare rock within a very short time. It is the tree roots that mainly bind the shallow soil, and their removal might and probably would soon transform the Low-Veld into a weary expanse of savage sun-baked rock and granite sand, incapable, save along the banks of the fast diminishing rivers, of supporting any life whatever.

Nor should it be forgotten that while the presence of wild animals in large numbers tends not only to manure but to preserve the soil, that of flocks and herds of domestic sheep and cattle, to say nothing of the inevitable accompanying

wheeled transport, is most destructive in any roadless country where natural drainage exists. Daily traffic of the animals to and from kraals and water, always by the same tracks, presently wears deep furrows in the ground; the wagons and carts habitually pursue the same line to and from their various destinations, until the wheel ruts become so deeply indented that another path must be chosen: in each case the trenches formed act as water carriers in the rainy season, and, constantly enlarged by each tropical deluge, at length become huge ravines, bearing away at every flood many tons of soil to the ocean. It is only necessary to compare some pastoral districts of the High-Veld as they were described by early travellers with what they are to-day, to recognize how much better conservers of soil and water are the herds of wild game than the domestic flocks of man.

It appears beyond reasonable doubt that, apart from the artificial stimulus it has received from man, siccation has been progressive over much of the African continent for a long time. Some of the great lakes and rivers have shrunk even within the limited period of civilized observation, and in the remote past the process doubtless produced the huge sand and rock wastes of the Nubian and Libyan deserts. Respecting these, it may be surmised from the results of recent exploration that some of that now almost dead country was at one time well watered, and teeming with animal and plant life. Hussanein Bey, during his great journey from Kufra to Darfur, visited the sun-scorched Owenat oasis, separated by hundreds of miles of blistering sand and rock from the nearest fertile country, and there saw and photographed carvings on the stones, not only depicting lions, giraffes, ostriches, and many kinds of gazelle, but what appeared to be cattle; and it is very significant that he could not find a single representation of a camel, though the latter is the only domestic animal which can now cross that frightful desert, and, moreover, has been known in northern Africa for two thousand five hundred years. Lake Ngami[1] as Livingstone first saw it in 1848, and Lake Chad, as known

[1] Lake Ngami sometimes partially fills up after a succession of exceptionally wet seasons, just as, on a small scale, a bush pan does.

to Denham and Clapperton in 1823, each presented an aspect very different from that of the present day.

South Africa, especially the Low-Veld, shares to the full the growing aridity of the continent. Desiccation, in the sense of restricted rainfall, need not be the sole factor, though it is possible that did records extend sufficiently far back, a progressive decline would be found. Exsiccation, implying a decrease in the value of the rainfall, consequent on various causes, including man's action, is more subtle, and proceeds at an alarming rate, as testified by visible results. The similar phenomena met with in Africa and in parts of Asia might indicate that interglacial periods in the temperate regions are the equivalents of the increase of desert conditions in the interior of torrid continents, while glacial epochs in the former might correspond to moist epochs in the latter. Where large land surfaces are concerned, even quite small rises in temperature are efficient, and sometimes astonishing factors in the evaporation of water.

The imaging of what may have been is always attractive, however little it may be warranted by ascertained facts, and it is interesting to picture the familiar country as it perhaps appeared in very ancient times.

It is possible that at a remote geological date there existed a constant and gradual slope from what is now the summit of the Drakensberg escarpment to the then sea-level. Later some seismic movement of the earth's crust probably occurred, and, whether due to the rising of the western, or the subsidence of the eastern parts, the former was shorn off from the latter, as a packet of sandwiches is cut with a knife, leaving the present escarpment standing with all its strata exposed. What subsequently became of the stratified deposits to the east can only be conjectured ; but it may be that they became eroded by aqueous agency, perhaps from the now higher country lying to the west.

Such a process, continued over long ages, would no doubt account for the disappearance of the majority of the formations which might naturally be expected to overlie the Archæan granite. At a much later date came the convulsions which

resulted in the upthrow of the Lebombo Hills, possibly to a height exceeding that at which they now stand. There is no evidence at present to show that the sea has ever intruded west of the present Lebombo line since the formation of the sub-continent; but it may be inferred from indications of pebble deposits to the east of the hills that these at one time formed the coast-line. After the formation of the Lebombo, the rivers found their present channels, coming down from the mountains, and cutting their way by deep valleys through the Low-Veld and the intervening hill barrier, to the sea. The climate changed; arid conditions slowly set in; denudation, perhaps temporarily checked, became accelerated; the rain forests, which possibly existed to within relatively recent times, disappeared. The Low-Veld, in short, began to assume the appearance which it bears to-day.

CHAPTER III

VEGETATION

Secondary forest—Tree types—Tree medicines—Parasitic trees—Fruit trees—Roots

FLORALLY the Transvaal Low-Veld, though a little more luxuriant than some areas, and a little less so than others, so much resembles other bush country common to the eastern half of Africa that a traveller acquainted with those places might, on a first cursory glance round, easily imagine himself to be in some part of the Southern Sudan, of Northern Rhodesia, or in fact of any country between the Nile and the Pongola. Of course closer inspection reveals differences in detail between the local trees and those of central Africa, but most of the families, many of the genera, and some of the species exist in common.

The tree vegetation of the Low-Veld, at the present day, consists of secondary forest, by which term is understood the stunted fireproof growth which after a time springs up on the ruins of the old high primary forest, and, in progressively arid countries, is intermediate between the latter and treeless barren desert. Secondary forest is an outstanding example of the survival of the fittest. Year after year the hardy drought-resistant trees are put through the ordeal by fire, to burst, despite scorched bark, into leaf, green and fresh, on the advent of the first rain. Even the young shoots and saplings of this tough growth are able largely to survive, though their early and annual trials, aided often by scarcity and poverty of soil, cause them to grow up warped and stunted.

It is very interesting to note how, about the end of September or the beginning of October, when the first rains are due, the whole bush begins to bud out in anticipation of the coming refreshment, and how, when the expected rains have been

delayed or, as sometimes happens, have failed altogether, the poor trees, with disappointed looks, begin to close in on themselves again and to resume their winter appearance—all ready, however, for a second effort!

Secondary forest, on the whole, is not inspiring nor even attractive in appearance, consisting as it does mainly of deciduous and rather undersized trees, seldom exceeding a height of twenty feet and, even when in full leaf, possessing no wealth of foliage. Dotted about, however, in places where soil and moisture are favourable, may be seen, singly or in groups, trees of much larger size, often evergreen, and of impressive appearance—relics perhaps of other days. Many of the old forest types, indeed, have more or less accommodated themselves to present conditions, and have acquired immunity at the expense of growth. Although the forest or bush which covers most of the country between the Lebombo Hills on the east, and the Drakensberg Mountains on the west, bears the same stunted appearance and possesses the same drought- and fire-resistant character, it nevertheless varies locally, alike in density and in type, from the open savannah country with its marulas and kameeldoorns, usually conspicuous along the base of the Lebombo, through the often dense thorn scrub of the central portions, to the park-like country, dotted with fine trees—among them the Waterwood (*Ilex mitis*)—which impinges on the foothills of the Drakensberg.

The Low-Veld, between the Limpopo River in the north, and the Crocodile River in the south, is bisected by the great Olifants River, a deep and swift-running stream, some two hundred yards in width, and fordable at but few points. This river forms a very pronounced floral barrier, as indicated by the considerable dissimilarity of the dominant types of tree vegetation found north and south of it respectively. To the south, acacia scrub, growing in shallow granite soil, predominates; to the north, especially after crossing the Letaba River, much of the soil is black holding clay, a morass in the rains, and a sun-baked brickfield in the dry season, while the tree life consists largely of mopani dwarf forest or scrub, with belts of thorn acacias along the sand ridges. Forest trees, including

Rhodesian mahogany (*Afzelia cuanzensis*) grow sporadically where the soil is suitable. Tall baobabs (*Adansonia digitata*) and palm trees unknown to the south, flourish yet more abundantly as the Limpopo is approached. The Olifants may be taken roughly to be the southern boundary in Africa of the baobab and the mopani. The former is by inclination a tree of rather open spaces, and I am inclined to think that the forest characteristics of some part at least of the country north of the Letaba remain to-day much as they have been for an immensely long period.

The dominant tree family in the Low-Veld is that of the *Leguminosæ*, composed of those genera which produce as their fruit a legume or bean-bearing pod. Comprised in this family are the numerous species of the genus *Acacia*, which are all deciduous, pinnate leafed, and usually more or less equipped with thorns ; besides many types of trees which bear little or no outward resemblance to them. For example—the widely distributed mopani (*Copaifera mopani*), thornless, and with a large scented double leaf ; the commercially unprofitable panda or umbandu (*Lonchocarpus capassa*) ; the very useful and extremely handsome kajadenhout (*Pterocarpus angolensis*) ; the elephant-wood tree (*Bolusanthus speciosus*), with its beautiful wistaria-like bloom ; the wide-spreading and scarlet-flowered kaffir-boom (*Erythrina caffra*), whose branches, lopped into poles and placed in the ground, will take root and grow ; the Rhodesian mahogany (*Afzelia cuanzensis*), growing to a height of sixty or more feet, its legumes containing very handsome large red and black beans, much in request as ornaments and curios ; besides many others too numerous to mention here. Although some members of this family may have formed part of the old, mainly evergreen forests, it seems improbable that the acacias were conspicuous there, being, as they are, essentially dry country trees. Perhaps formerly they may have led a less fully developed life amid conditions less suitable to them than those of the present day, under which they flourish extravagantly, and seem in a fair way to become the sole form of tree life within their habitat.

On the whole, perhaps the most striking, as it is one of the

PARASITIC WILD FIG TREE GROWING ON BARE ROCK

BAOBAB, OR CREAM-OF-TARTAR TREE

commonest, of the larger forest trees in the Low-Veld is the umtoma (*Diospyros mespeliformis*), called "jakals bessie" by the Boers, and sometimes known as the Transvaal ebony tree. It belongs to the *Ebenaceæ* family, and under fairly favourable conditions grows to a height of sixty or seventy feet. The small lanceolate leaves, of a darkish green, grow about ten on a stem, and the tree may be relied upon for shade during practically the whole of the year, being so nearly evergreen that, although at the end of the winter its foliage turns to a beautiful russet colour, by the time the old leaves have dropped or have been blown off the new buds are already burst into life. The timber is excellent for a great variety of purposes, and the fruit, the size of a small cherry, is sometimes eaten by the natives. The bark is rather rough and scaly, and the bole attains a diameter of about three feet.

A relic of old primary forest conditions, the umtoma has acquired only relative drought- and fire-resisting attributes, and therefore seldom if ever can succeed in attaining the age and size which more favourable conditions might confer on it. As it loses its youthful vigour, so it gradually becomes less resistant to its trying environment; scorched pieces of bark fall off, and are not replaced; borers get into the wood; and eventually the latter becomes charred at the exposed points, with the result that subsequent fires eat into the heart of the tree and destroy it.

The umkudhlu, or Cape mahogany tree (*Trichilia emetica*) does not attain to the height of the umtoma, about thirty feet being its limit in the Low-Veld; but, throughout the year it is clad in a beautiful coat of shiny dark green, which, shutting out every gleam of sunlight, provides against the outside scorching glare a cool black shade, such as only the parched wayfarer of the tropics is able fully to appreciate. This is perhaps the most useful all-round tree in the Low-Veld; not only is the wood strong and durable, and the bark useful for tanning, but the fruit—a large bean—supplies, when crushed, a rich oil, which after extraction solidifies into solid white grease. This oil or grease can be utilized in the manufacture of soap and of oilcake for stock feeding, and besides is used extensively as a native food, especially in Portuguese East Africa.

The same tree, or a variety so nearly related as to be indistinguishable in appearance and habit, grows in the little clumps of fine forest which crown the sand ridges or *duks* in the Dinka country of the Southern Sudan, and the natives there, who know the tree as *tibor*, also made use as a food of the oil extracted from the bean. The umkudhlu likes the vicinity of water, and therefore usually favours the deep soil of the river banks. In its youth it grows up in the deep shade of its parent tree, and is generally found in small groups of various-sized individuals, mingled with a few umtomas. It is not very strongly fire-resistant, and for that reason is usually a dweller in moist places where grass fires, if they come at all, will not be very severe.

A rather conspicuous tree, widely spread in Africa, and found along nearly all the rivers and spruits of the Low-Veld, is *Kigelia pinnata*, the so-called " sausage " or " cucumber tree." These names are both rather apt, for the bolster-like fruit, a foot long, and a couple of inches in diameter, which may be seen pendent from the bushy umbrella-like crown of the tree, resembles equally a cucumber and a large German sausage. The local natives term the tree imvumuti, from the resemblance of the fruit to the tail of an African sheep, while the Arabic name, in the Southern Sudan, is *abu shantar*, or " father of kit bags " ; both quite as good similes as the English one. The tree grows to a height of twenty or thirty feet, and offers quite respectable shade. The fruit, albeit uneatable, possesses certain healing properties, and, finely ground up, is used as an ulcer dressing. The wood is of fair quality. One of the hardest and most insect-resisting of Low-Veld woods is provided by the African teak (*Adina galpini*), known locally as umhlumu. It is found growing in damp ground close to rivers, and the islands of the Sabi are covered with it. It stands well up to the heaviest floods. This African teak has no relationship to the true teak tree of India (*Tectona grandis*).

Trees and plants are the sources of all the native medicines. Ancient experiments, added to the experiences handed down through many generations, have produced an undoubted medical science which extracts, direct from nature, drugs

possessed of properties similar to those used by the practitioners of civilization. The cures effected are sometimes remarkable, and would doubtless attract more attention but for the fact that to impress his patients the native doctor must employ so much mystery, and appeal so largely to their superstitions that the real value of his ministrations is apt to be discounted.

The mhohlo or elephant-wood tree (*Bolusanthus speciosus*) is a tree with a spreading top, growing to a height of twenty or thirty feet, with a handsome flower and useful white wood, and its root is used as a purgative. For the same purpose is employed the bark, ground up, and, in very small quantity, mixed with porridge, of the umtomboti (*Spirostachys africanus*), a member of the *Euphorbia* family ; but it must be used with caution, as the tree is highly poisonous, and the acrid sap, if it gets into the eyes or a skin abrasion, is liable to set up serious inflammation.

Other purgatives are the bark and seeds of the lijaha or shungwe, a large deciduous tree usually found growing along river banks, and the milky sap of a small cactus shrub known as umhlebe, which having mildly irritant properties, is also used as a dressing to extract thorns from the feet. In the treatment of dysentery, the above mentioned umhlebe sap, and also the bark of the marula (*Scelocarya caffra*) are employed. The umbandu (*Lonchocarpus capassa*), considered worthless by Europeans, though providing a tolerable shade, is rather important to the natives. The root is burned and the smoke inhaled to cure colds, and mixed with the leaves of a small plant known as zaba-zaba (*Datura stramonium*), forms the main ingredient of the drink administered by the witch doctors to disputants in certain cases brought before them for settlement ; stamps for pounding grain are made from the wood.

Bronchitis is treated by a decoction from the root of the umnungwana (*Xanthoxylum capense*). For simple headache, the smoke from the burning root of a shrub growing near water and attaining a height of about four feet, known as likatsata, inkatza, or sungu, is inhaled. For toothache the fruit of the bitter apple tree (*Solanum sodomeum*), crushed and held in the mouth, is a common recipe. Pains in the stomach are relieved

by chewing the bulb of a plant growing in river beds, and known as incatavana. Diarrhœa is stopped by drinking the boiled-down bark and root of a large deciduous tree called lumanyama or inkonkoni (*Cassia abbreviata*), while a treatment for malarial fever is a decoction of the bark of the tsunganyi, also a deciduous tree of some size, found mainly in Portuguese Territory.

The umlahlabantu (*Zizyphus mucronata*) is a very common tree of small size, with twigs of a dark red colour ; its root is chewed, and the juice swallowed to cure intestinal pains. This tree is also used in connexion with burial rites. When a man dies, and is buried according to custom if a stock owner, within the cattle or goat kraal, some branches are placed on the grave, " that the animals may nibble the leaves and twigs, and so understand that their master is dead." Many native customs are, however, now moribund, and their origin forgotten, and in the above case I am inclined to think that the original idea was to place a large mass of these very thorny branches on the grave for the purpose of keeping off marauders, and possibly of preventing animals from walking over it.

The umsala (*Strychnos spinosa*) and the umkwakwa (*Strychnos pungens*) both termed kaffir oranges in English, and klappers in Dutch, are small evergreen trees, bearing large globose fruits, three or four inches in diameter, with hard shells which turn yellow and deep orange respectively when the fruit is ripe. The rind of the umsala is used as an emetic, and when a man's wife has died, a brew is made from the roots and given him to drink ; the pulp round the numerous large seeds found inside the shell is watery and very refreshing, with a slightly acid taste. The umkwakwa has a bitter taste, and is not usually eaten by local natives, though a small east coast tribe have been named Bakwakwa on account of their fancy for it. When used as a food it is customary to cook the pulp after it has been dried and pounded small ; the leaves are crushed up and mixed with water to form a dressing for sore eyes.

Another emetic is made from the boiled roots of the umnulu (*Balanites ægyptica*), a tall tree with dark green leaves and

very long straight thorns; its seeds, which are large, are used by witch doctors in the ceremony of bone-throwing. Many of the bulbs found in the bush are also used medicinally, usually after having been cut up and boiled; but expert definition is needed. For instance, a man suffering from some complaint or other consulted his doctor, who instructed him to dig up a certain bulb which he described to him, and to boil and eat it. Apparently he dug up the wrong one, for immediately after swallowing the mixture he was seized with a sort of madness, and rushed out into the bush, where he spent the whole night wandering about. When he returned in the morning, the fit having passed, he said he recollected perfectly what he had done, but was unable to help himself!

For septic wounds, such as are incurred from the teeth and claws of carnivorous wild animals, the root of a bush known as sipalati is burned, ground up fine, mixed with water, and the solution used to wash out the wounds. My opinion of the capacity of native doctors was considerably raised by an incident which occurred a few years ago. A native policeman, in an encounter with poachers, received a spear wound in the chest, which penetrated to the lungs. The external wound healed after a time, but the man was apparently going into a decline as he became little more than a skeleton, and showed all the symptoms of advanced lung trouble. A white doctor who examined him pronounced the case hopeless, and so I sent him to his kraal, as I thought, to die. There he placed himself under a native herbalist, with the result that in about three months he was practically cured, and is now, two years afterwards, going about his work as well as ever he was in his life. He said the charge for the course of treatment he underwent was £4!

The habits of many of the species of wild fig trees are extremely interesting. *Ficus sycamorus*, known locally as umkua, and common through most of Central Africa to the Southern Sudan, where it is called by the Dinkas *kwel*, is a fine tree, growing to a height of fifty or sixty feet; undeciduous, its large leaves are pale green, its fruit hangs in panicles, its bark is smooth in texture and very light in colour, its trunk heavily buttressed. It is, to a very large extent, though not

entirely, parasitic or epiphytic in its youth : growing up under the shelter of a parent tree of its own species, it gradually insinuates itself round the stem and under the branches of its elder, supporting itself by the latter's strength as it mounts, until it is sometimes difficult, except for the slightly lighter colour of its bark, to distinguish it from its parent. I have not noticed that this embrace is other than friendly, or that the parent suffers premature extinction; in fact the two trees frequently display an extraordinary capacity for merging one into the other, a branch of the younger appearing to be swallowed up within the bole of the elder, or in another place seemingly protruding therefrom, while the roots of the epiphyte may be seen pendent, fluttering like brown fringes in the air, a long way from mother earth. Naturally, in course of time the older tree dies, and the younger takes its place; but I doubt if it hastens its parent's extinction. Quite otherwise is it when the umkua is parasitic upon a tree of some other species, as it often is upon the umtoma; then it slowly twines round and strangles its host, finally standing forth triumphant upon the latter's withered corpse. It is not possible to travel far through the Low-Veld without witnessing several of these insidious embraces in progress, from the stage where the weakly thread-like parasite, craving protection, is beginning to encircle the great bole of a stately umtoma, standing in its pride of strength and splendid foliage, to the last phase, where the umkua, full grown, and brazenly triumphant, holds in its big lusty limbs a shrivelled black trunk, from which a few leafy twigs may still pathetically sprout. Probably the reason why the umtoma is so frequently the object of attack is that its berries and shade render it particularly attractive to birds, which, if they have recently been feeding upon umkua fruit, are likely to drop the fatal seed among its branches. I have seen a young umkua flourishing amid the crown of an umtoma, its fluttering roots still ten feet or more from the ground, its nourishment drawn entirely from its present host and future victim. In some species of *Ficus* the aerial roots grow downwards until they touch the ground, when they form the stems of new trees which grow up all round the old one, thus

A THONGA FAMILY AT HOME

SYCAMORE FIG TREES
(CHAPTER III)

forming a sort of fenced-in enclosure ; in Portuguese Territory this species is locally known as the banyan. The well-known wonderboom (*Ficus pretoriæ*), on a hill outside Pretoria, is an example of this characteristic.

Ficus soldanella, the indendi or rooi touw, is a rather small fig tree, possessed of slender lanceolate dark green leaves growing in bunches, and is of highly ornamental appearance: generally found near water, it also is parasitic, and preys upon other species at least as frequently as the umkua. Another species—*sonderi*—favours rocks and stony hills, and is to be seen crawling in and out of rock crevices, its roots apparently destitute of any soil support, seeking and then so enlarging every available crack and fissure that it eventually splits asunder the largest rocks. It is extraordinary how this tree survives and prospers under the conditions of heat and drought which apparently prevail among the sun-baked, tumbled rock formations of the Low-Veld, though no doubt there are hidden sources of moisture concealed under the larger boulders, which are invisible to the observer.

Another fairly common species of *Ficus*, which I have—perhaps from faulty observation—not observed to be parasitic on trees of other families, is *F. stuhlmanni*, the shinsumfana or nomba-nomba. It grows to a height of about thirty feet, with a stem diameter of about three feet, and has a spreading shady crown and a rather large dark green leaf. Unlike many of the other wild fig trees, its bark is of dark colour. Though undeciduous for all practical purposes, at the end of the winter the older leaves, though still remaining green, look dry and cracked just before the new growth comes. The pear-shaped fruit grows singly, and is rather smaller than a cultivated fig. To the European palate at least, it is a tasteless affair, suggesting chiefly wood fibre ; but fortunately tastes differ, and I know no forest fruit which is more greedily devoured by the birds. One of these trees shaded my hut in a permanent camp to which I sometimes resorted. During October, when the tree was covered with fruit, it became a positive aviary. Every morning at sunrise, flights of the usually very shy green fruit-pigeons used to arrive, and, oblivious of man's presence at

close quarters, would proceed to stuff themselves to a degree which I would have considered impossible if I had not seen it. The fairly large fruit was seized and bolted whole, and hardly had it disappeared, when the bird would hop to another branch and repeat the process, and so again and again, as if it had been a race against time. These fruit-pigeons were ably seconded by various other birds—bulbuls, mouse-birds, grey louries, and many others—so that all day there was a constant fluttering and twittering, while after dark and until I fell asleep the light swishing of wings indicated that the fruit bats were taking their turn. The quantity of fruit on this tree was so enormous that at the end of several weeks during which I remained under its shade all this toll had not reduced the amount to any visible extent. In view of its popularity, nature had doubtless endowed it so richly as to ensure a sufficient quantity of seed remaining for perpetuation. A small epiphyte of the same species was attached to this tree, its roots dangling in the air, and in some places engulfed by the parent stem.

Natives manufacture cloth out of the bark of some species of *Ficus*. Rope is made from the bark of several acacias and from that of the bush known as tshishumbana (which produces the beautiful little red and black seeds or " lucky beans " often strung into necklaces), while the fibre of the ilala, or fan palm (*Hyphœne crinita*) is used for the same purpose.

Probably the most popular fruit with man and beast is the marula (*Scelocarya caffra*), known to the local natives as umgana. It prefers open savannah country, where it grows to a height of about thirty feet ; under denser conditions it seldom exceeds twenty. It possesses a straight bole and a spreading crown, and is rather a handsome tree, though it casts its leaves and remains bare for six months in every year. The wood being easily worked, makes a fair substitute for deal, while the bark, which is smooth, is soaked and the liquid used as an enema. It is on account of its fruit, however, that the marula is best known. A native will cut down and burn, without a pang of remorse, the finest shade and timber trees ; but he will always spare the marula. The fruit is about the size of a plum, yellow when ripe, and rather hard ; the stone,

like that of all native fruits, is relatively large, and contains an oily kernel used as food. The flesh of the fruit is pleasant and refreshing, but has an acid after-taste ; it makes fair jelly and vinegar. The name " umgana " implies " friend," and the title is not undeserved.

During the season, that is, about the month of March, the trees which, in their favourite habitats, are very numerous and extremely prolific, cast their fruit in millions to the ground ; every wild animal gorges itself ; elephants travel many miles to the area ; the native women from the villages turn out in crowds, armed with baskets and receptacles of every description, and, loading themselves with as much fruit as they can stagger under at each journey, return again and again for more. Arrived at the village, the fruit is first stoned, and then, having been squeezed into a pulp and mixed with water, is placed in large jars, where it is left to ferment. When the latter process has taken place the liquid is drained off, and forms a refreshing albeit intoxicating beverage. Marula beer is so popular among the natives of the Low-Veld that, during the period when the fruit is ripe, which often extends over a couple of months, there is such an unceasing round of entertainments and of general festivity that it is often impossible to get any work done at all. Stated in more direct language the whole country-side is either preparing to get drunk, actually drunk, or getting over being drunk. The potency of marula depends upon the degree of fermentation, but is always greater than that of ordinary native beer made from millet, and generally about equal to that of ordinary malted hop-beer. A native will consume some gallons at a sitting, and the effects are frequently disastrous. A few days or weeks of such conviviality seem to induce a strong craving for meat, and so hunting parties are organized to go out into the veld and satisfy this new want. At the marula season, therefore, it behoves a game ranger to be more than usually alert, while at the same time his activities are likely to be hampered in greater or less degree by his native assistants having themselves come under the epidemic of conviviality and " open house."

In some districts of Portuguese East Africa the natives

distil the marula juice, when it becomes a potent spirit. (The knowledge of distilling was acquired centuries ago from Europeans and Asiatics on the coast.) The marula stones are broken for their kernels, not only by the natives but also by birds and beasts, including of course the omniscient baboon.

Intoxicating drinks are also obtained from the isundu (feather) and the ilala (fan) dwarf palms which grow luxuriantly in some of the dry stream beds. One end of a hollow reed is inserted into the stem, while the other rests in a small jar or dish. The sap trickles drop by drop through the reed until the cup is full, when the latter is emptied and replaced. When fresh this drink is harmless, and tastes almost like flat ginger-beer ; but after fermentation it becomes very potent, and also loses its sweet taste ; the longer it is kept the stronger it becomes, and needless to say its popularity is in direct proportion to its strength. The most esteemed fruits are those which can be brewed into intoxicating liquor ; human nature is much the same, no matter what the degree of civilization. Those well-meaning persons who speak of the European as having taught the innocent native of Africa the use of strong drink display ignorance of their subject. It is true that the distilled spirits manufactured by white men are extremely harmful to the African, but their effects would be less obvious were they not almost always adulterated to an abominable extent before being sold to him. The native's constitution is as resistant to the effects of alcoholic poisoning as is that of a European.

Though a number of wild fruits grow in the Low-Veld bush, few of them, owing to their bitter after-taste, are pleasant to the European palate ; the kernels are relatively enormous, surrounded by a mere padding of pulp. After the marula, the best known edible fruit is the umsala or kaffir-orange, previously described, and there is a tree called umtunduku or " sour plum," bearing a fruit which looks like a real plum, but has an acid taste ; the kernel is rich in fat, and much in favour for softening hides. Another plum-like fruit grows on the mobola (*Parinarium mobola*) or grys appel, a large evergreen tree with dark green foliage : the fruit looks rather like a mango, and has an even larger stone than the latter. This

tree bears good timber. The umvilo or wild medlar (*Vangueria infausta*) grows to about twenty feet, and the fruit is like the garden medlar in appearance. Umtelemba is the wild custard-apple (*Anona senegalensis*), another small tree, the fruit outwardly much like the cultivated custard-apple. Umnumbela (*Chrysophyllum megalismontanum*), the stamvrugte of the Boers, sometimes grows into a large tree with pedicellate flowers : large berries, which make excellent vinegar, grow on the stem. The waterberry-tree, or isinxosa (*Eugenia cordata*), bears clusters of blue-black berries which are eaten by the natives.

The above are merely examples of some of the best known of the edible fruits which exist, and by no means represent a sum total. In years of scarcity, the women and children collect tree fruits in large quantities, and in fact should a man know where to look, he need never starve in the bush, albeit the fare may not always be of the most succulent nature. At the same time, since poisonous berries abound, the neophyte should avoid experimenting on his own account.

There are also a number of edible roots, mostly, according to our taste, rather stringy and woodeny. A good rule, if a man unfortunately finds himself in the position of having to depend upon unassisted nature, is to watch what the wild birds and beasts most eagerly seek, whereby he is at least less likely to poison himself. The warthogs turn up edible roots wherever they roam, and areas of even an acre in extent may often be seen ploughed up as if by workmen equipped with hoes. Some of the bulbs make excellent eating, and are almost equal to asparagus or onions ; others, like a proportion of the roots, are dangerous : the natives, of course, are able to discriminate ; but the white man would do well not to experiment unassisted by expert advice.

A very good edible mushroom exists, as well as a number of species of poisonous fungi. A handsome dark crimson type of the latter grows in swampy places, and so is often found in the near vicinity of fever trees. When mature, its odour is so strong and disagreeable as to convey the impression that decaying animal matter is lying somewhere close by, and strangers are sometimes puzzled until they have ascertained the true origin of the smell.

CHAPTER IV

VEGETATION (*Continued*)

Change of season—A day among the trees—Forest fires—Exotic trees

DURING the southern winter when, sometimes for nearly six months at a stretch, no rain falls, the Low-Veld bears a dried-up, monotonous, almost dead appearance. The grass is either burnt off, leaving a blackened waste, or remains parched and withered to a dull brown colour ; the trees are mainly leafless, and some of the acacias, especially, look like grey skeletons, which nothing can ever again bring to life. Yet, in contrast to all that sterility and floral idleness, there may usually be found without much difficulty some fine evergreen tree, under whose shade the midday rest may be luxuriously enjoyed.

With the advent of the first rains, usually about the beginning of October, the scene changes. The whole country suddenly bursts into leaf and flower. Nature awakes from her long sleep, not slowly, with preliminary yawns and stretches, as in less sunny climes ; but springs up in a moment, fully awake, and all fresh and smiling from her rest. The trees take on a riot of blossom—yellow, blue, mauve, white, scarlet ; the acacia hordes, so gaunt and bare for many months past, clothe themselves in delicate green ; green, too, the earth, so recently naked and scorched. Thousands upon thousands of wild lilies and tulips, violets, and primroses, spring up everywhere. The rathbonia (*Pachypodium*), with its football-like bulb, one of winter's few ornaments, has not yet changed its waxen-white and crimson flowers for its summer coat of dark green glossy leaf.

As he treads the short emerald-green herbage, and notes the wealth of colour displayed on all sides, the wayfarer may well imagine himself to be walking through some carefully tended botanical garden. In the pools, water-lilies—pink, white and

blue—cover the surface. There is a delightful freshness in the air. The ceaseless hum of the insects, and the constant twitter of the birds, all alike busy on new architectural plans for the coming season of reproduction, convey an overwhelming sense of vibrant, all-pervading life and activity. The four-footed children of the wild frisk and play as though existence held for them not a single care. Fauna and flora alike, each in its own way, unite in one single swelling hymn of joy. It is just a little glimpse of paradise coming between the brown, dead winter, and the enervating sun-ridden summer, and, short though its duration, its memory is slow to fade.

Each differing portion of the Low-Veld has its own charm at this time of the year. In the far north, between the Letaba and Limpopo Rivers, lie extensive plains clad in bright green mopani, which varies from scrub a few feet high to quite fair forest in which but little grass can grow. Here and there stand gigantic baobabs or cream-of-tartar trees (*Adansonia digitata*), their strange, mushroom-like appearance carrying the mind involuntarily back to some previous floral epoch of the earth's history ; almost we expect to see some giant sloth browsing on the twigs of the umbrella-like crown. One of these trees, growing a short distance above the Letaba-Olifants junction, was about twenty-five feet in height, and measured, at four feet from the ground, fifty-two feet two inches round the bole. This will give some idea of the general appearance of these curious trees. Palm trees in plenty fringe the rivers' banks ; not only the dwarfed fan and feather palms found farther south, of which the former (*Hyphœne*) here attains greater height, but the tall graceful *Borassus*, its lofty crown rustling in the breeze. Mahogany (*Afzelia*) and teak, and ebony trees (*Adina* and *Diospyros*) are likewise present, together with most of the other forest trees found elsewhere. Present too, though in modified numbers, are belts of the familiar acacias, with *Combretum* and *Brachystegia*. On the steep Lebombo slopes grows the kaffir-ironwood (*Millettia caffra*), with its straight branches of hard and durable timber, so much in request for walking-sticks and assagai hafts. Nor are the Lebombo Flats south of the Olifants River less attractive in their own way. This open

park-like country is the paradise of the marula, of which hundreds dot the landscape, mingled with albizzias, well-grown acacias, and the usual types of *Ficus*, *Diospyros*, *Combretum* and *Kigelia*. Clumps of dense thornless and evergreen undergrowth often fringe the spruits, the beds of which are filled with masses of dwarf palms, their great leaves crackling and rustling at each breath of wind—ideal sanctuaries for every wild beast that wanders abroad by night. Even the savage gorges, where the rivers pierce the Lebombo Hills, with their uncouth boulders, backed by frowning precipices, don at springtime a flowery mantle, and with it a less forbidding aspect.

A day's ride through the Low-Veld in the neighbourhood of the Sabi River provides a wide field for floral study. The character of the bush is constantly changing. At first the fairway along the bank of the river is nearly blocked by a thick belt of rather stunted thorn bush, amid whose maze we thread our way with some difficulty, and at considerable expense to our garments. The trees are mainly acacias or buffalo thorn (*Zizyphus mucronata*), equipped for the most part with an armament of hooks and spikes which must be seen to be believed.

Of all those coming under the embracive title of " wait-a-bit," the worst to my mind is the umkaiya (*Acacia pallens*). Its little round leaves, of tender green, look so fresh and innocent that the unwary stranger is apt unthinkingly to brush against one of its twigs, to be at once firmly grasped by the frightful hook-thorns, which are set back-to-back in pairs, much like those at the tail of a spoon-bait. So tightly do they grip him, indeed, that disentanglement can seldom be effected save with the loss of some part of the garments, and possibly of the person as well. As if to make up for its combative tendencies, the umkaiya, also called knopjes-doorn, is one of the most useful of Low-Veld trees. The rough bark, soaked in water, provides excellent tannin ; the wood is extremely durable, and hard to the extent of being white-ant resistant, thus furnishing excellent poles for fencing and hut-building, while the fruit, a long bean pod, is one of the favourite foods of the browsing wild animals. Scarcely less formidable is

EUPHORBIA CANDELABRA

GIANT ALOE

sinauwa (*A. rostrata*), the gum acacia, its long hook-thorns very sharp and strong, but set singly, and so fashioned as to tear rather than to hold. The gum exudes from the stem in great globular masses, which quickly harden, and is akin to the gum arabic of commerce.

The acacia, with the nearly straight white thorns, over three inches long, and growing in pairs, is the umshangwe (*A. retinens*) ; a decoction from its bark is used as an emetic ; its bean is a favourite food of the browsing game, and its pods, boiled down, make a useful brown dye. That rather flat-topped thorn tree about fifteen feet high, with long straight spikes studded like nails all over its branches, each of them backed by a small hook-thorn, is *A. spirocarpoides*, the umsasane, sometimes wrongly referred to as the mimosa thorn tree ; its small twisted bean pods are greedily devoured by the impala antelopes which abound in the acacia forests, and captive animals, fed upon them, soon become very fat. *A. benthami*, or sihoho, furnishes a bean pod which, boiled down with its contents, makes a fair ink. There must be at least twenty separate species of acacias in the Low-Veld, and nearly all are so well armed against intruders that the native who precedes us, equipped with a heavy bill-hook or *machete*, is a necessary adjunct to every bush ride. I know nothing more painful than, when riding quietly along, to get hooked by the ear to a wait-a-bit twig ; unless the horse can be stopped promptly, something has got to yield, either a piece of the ear, or the stout thorn, and in my experience it is usually the former which gives way first. Emerging from the thorn belt there lies before us, for the next half mile, a stretch of more or less open river bank dotted with a few large ebony and Cape mahogany trees—a little colony of patricians. Just beyond this the land, formerly similarly tenanted, has been at some time cleared for native cultivation, and later abandoned. Where the large trees formerly stood is now growing up a low acacia scrub which, a few years hence, will form an almost impenetrable screen, similar to that through which we have just passed, thus causing us to reflect upon the results of human activity as affecting the wild flora.

Turning away from the river, we soon arrive at a new type of forest. Here, though acacias still occur, the bulk of the trees are thornless, and stand from fifteen to twenty-five feet high. We notice *Combretum spiculatum* or skukudze, a very common type, *Terminalia prunoides* or sasandzao, and vovona (*Schotia*), the latter a bushy tree of no great height, producing a handsome scarlet flower in the spring. That little tree with the yellowish waxy flowers is a gardenia (*G. thumbergia*), a species found right through east Africa, and flourishing profusely in certain parts of the southern Sudan: among the Thonga tribes the branches are laid across thresholds of huts, or stuck in the ground close by, to keep away witches: the fruit, which is round, and rather larger than a golf ball, forms a certain article of dress for the Zulus and tribes of kindred custom.

The tree with the handsome silvery grey-green leaves of lanceolate shape is the umgosi (*Terminalia sericea*); in the Low-Veld proper it seldom grows to more than twenty feet in height, but among the foothills of the Drakensberg, where conditions are moister, it sometimes attains to fifty or sixty feet; it is very fire-resistant, and carries a heavy hard timber. There, standing alone like a sentinel, is a big mwando or lead-wood tree (*Combretum imberbe*); the trunk and branches are so pale coloured that in some lights the tree seems white, and indeed all through the winter months it stands looking like a gigantic skeleton. It is one of the slowest growing of all the forest trees, and as the timber is valuable, it is seldom permitted to attain any great height; in fact it is only down in these eastern flats that it can be seen reaching its normal growth of seventy or eighty feet, with a trunk three or four feet in diameter. Its ash makes an excellent substitute for lime in whitewashing, and it is all too frequently exploited for this minor purpose.

Now we come on to some rocky ground, leading to a low line of kopjes, covered with scraggy dwarfed acacia, cactus, and *Euphorbia candelabra*, the last-named, like others of its family, possessing strong toxic properties; the sap is used to smear the blades of arrows, as well as for other purposes where a deadly poison is required. Though of no great height,

it is a striking tree, with its weird leafless branches, adorned with spikes, pointing, like green, fleshy arms, straight up at the sky: at a distance it looks not unlike the candelabra from which it derives its name, and somehow it conveys a suggestion of malevolence. Not far away is a cork tree (*Erythrina tomentosa*), with scarlet flowers and queer spongy bark, which no fire seems able even to singe. Close by, the remains of a stunted ebony tree, out of place in this stony ground, is gasping out its life in the merciless grip of a parasitic wild fig, which now holds the almost lifeless trunk as some wild animal its prey.

In some swampy land below the kopjes are growing a number of the curious so called "fever trees" (*Acacia xanthlophlœa*), handsome in their peculiar way, and some of them quite fifty feet high. The bark is covered with a yellowish green powder, which easily rubs off, and lends to the tree a rather ghastly and unhealthy appearance. Though it derives its English name merely from its habit of growing in swampy, and therefore feverish places, I have met men who were convinced that it carries malaria, and would hold their noses when passing it. Like most others of its tribe, it carries a thorn, and when in leaf provides better shade than its appearance at first sight suggests.

Seated on the kopjes, we have spread around us a fine panorama of grey-green bush, relieved at intervals by the dark dominating crests of forest trees. The course of the river is well marked by a band of these evergreens. The bank is their sanctuary; though even there they are not free from danger. The immense quantities of debris brought down by the abnormal floods described in Chapter I are held up at intervals by the groves of large trees crowning the banks. Thus are deposited against the trunks many tons of rubbish, which gradually dry in the sun. After the exceptional floods of March, 1925, I found this to be the case at many places along the Sabi River, and it was clear that at the next grass fire these masses of tinder would form the funeral pyre of many beautiful trees. At one spot, where some particularly fine umkudhlu groves had to be saved if at all possible, it took a

gang of twenty natives, working all day, to clear away the refuse. I found places where fires had already done their work, and where only a few charred trunks, their surroundings covered two feet deep in wood ashes, remained to tell a tale of furious conflagration. Of course no trees, however hardy, can withstand bonfires of this kind, but it takes a great deal to kill the real fire- and drought-resistant types. Secondary forest, under present African conditions, has a good deal to recommend it. Nowhere else in the world, I suppose, do devastating grass fires effect so little apparent material damage to the trees generally as in tropical Africa. In the Cape Peninsula, where the forests are not fire-resistant, a blaze sometimes bursts out on the slopes of Table Mountain, and in spite of every effort may burn for days, doing immense damage to the beautiful silver trees, and other high forest.

In America and in Australia bush fires are said to sweep all before them, burning great extents of forest to the ground, and laying waste the country for miles. In tropical Africa the grass is just as long and just as dry as in the above two continents. Sometimes a fire will come along driven by a hot dry wind of the force of half a gale, usually, in the Low-Veld of the Transvaal, from the north or north-west. The wall of flame, with the roar of a furnace, rolls on, eight or ten feet high; trees are engulfed in a crackling curtain of smoke and fire, and behind the barrage, intent on the scorched insects, flutter countless birds. It seems to the onlooker that nothing of the flora could survive throughout the twenty-five or thirty miles of country which the fire sometimes sweeps; yet, when the earth is cool enough to walk upon, the sturdy little fire-proof trees may be seen still standing in the midst of the blackened ash-covered soil, just as if nothing much had occurred. Should the fire come late in the season, after the leaves are unfolded, the trees are naturally scorched bare, but despite their unhappy dejected look, the next fall of rain will see them again green as before. Many even of the young shoots and saplings manage to survive. Here and there a sickly or injured tree probably suffers more than its neighbours, while the scattered and less resistant relics of earlier forest are often badly scorched. But

A BUSH FIRE

GRANITE BOULDERS NEAR SABI RIVER
(CHAPTER I)

even these have to some extent accustomed themselves to new conditions, and possess a further partial safeguard in that the long rank grass, which forms the chief food of the fire, cannot grow in the immediate vicinity of their trunks. Nevertheless, umtoma and umkudhlu trees, which happen to be growing away from the damp ground near the rivers, often suffer severely, and it is doubtful if under such conditions they ever survive their early maturity.

It does not require any very intimate or technical knowledge of trees to recognize them as living creatures, each species, if not each individual, possessed of likes and dislikes, sympathies and antipathies, love of solitude or love of company. As in the case of animals, it is the wild ones whose habits are the more interesting to study. Tame trees, like tame animals, have had their natural tastes cribbed, cabined and confined by man, and it is only in the remote wilderness that tree life, like animal life, may be studied as Nature intended each to be.

In the vegetable world the struggle for the survival of the fittest proceeds as ruthlessly as among the higher forms of life. Observe how the young trees are smothered and killed by the surrounding grass, while the latter in its turn cannot live under the shade of the larger trees. Consider how difficult it is to rear saplings of the finer forest trees, and how those of the thorn acacias, after having been torn out of the ground, cut, burned or otherwise apparently destroyed, spring up again and again. Note how a severe grass fire has so scorched the bark of that fine ebony tree that it is now flaking off; next year the wood itself will be charred, and the tree marked for early destruction, while the same fire has hardly left a mark on the scraggy wait-a-bit growing close by!

Over five hundred varieties of native trees are enumerated in the official "Native Timbers of South Africa," and of these the great majority are Low-Veld residents. Consequently their complete record would fill several volumes, and in the short space of two chapters it is possible only to make more or less haphazard selections from the most familiar types growing in those portions of the Low-Veld which are best known to the writer.

The grasses which mantle the Low-Veld, in summer with

green, and in winter with the more sober hues of yellow and brown, never attain the exuberancy of growth common to the regions of central Africa. A height of about two feet is usual among most species, though the rank spear or *tambookie* grass abounding in the western areas, with its needle-sharp and barbed seeds, which penetrate and work through the thickest garments, reaches about five feet. There are a vast number of varieties, each of the more edible forming the favourite food of one or more species of the graminivorous wild animals. The hard, wiry, and innutritious types, which often cover considerable areas to the exclusion of others, demonstrate their presence in the general absence of wild life, while the spaces occupied by the softer and more succulent kinds are, in the height of the dry season, usually cropped down to the lowest limit. Among the more useful may be mentioned *Urochloa*, its large seeds resembling those of canary-grass, *Panicum*, *Enneapogon*, a very soft grass, and *Eragrostis*. From the small space of a grass plot outside the writer's bungalow, and not more than fifty square yards in extent, no fewer than nine different species of grasses were collected, all more or less edible. During August and September the pasture is withered, and devoid of any trace of sap, while the seed has long since fallen ; but in spite of all, the wild game, inured through countless generations to this scanty provender, still looks fat and sleek. It is only when the grass fails entirely, as it does in some seasons of exceptional drought, that the wild animals begin to starve and die.

Grass-burning, once universal in South Africa, and now abandoned in the High-Veld by all but the most backward farmers, still finds supporters in respect of a wild country. It is argued that long and matted old grass, which has not been burned for several years, is avoided like a pest by the grazing game, partly from its lack of nutrition, and partly because it affords such good stalking cover for their enemies. It is certainly true that when a stretch of old grass, previously neglected by the animals, has been burned, in a few weeks the little bright green shoots of new grass have attracted hundreds to the spot. Grass-burning, at the right time of

year, is also believed to destroy uncountable myriads of grass ticks, by far the greatest pest of the country. By the right time of year is implied that it must not be too early, nor yet too late in the dry season ; if the former, it is liable to burn the eggs or nestlings of some of the later ground-breeding birds ; if the latter, the veld is so dry that, before a wind, fires are apt to get out of control, and to sweep over large areas of country. Sheep graziers in the Low-Veld, who must have short grass for their charges, prefer to burn the old grass as early as possible in the year. All hunters know how eagerly game moves on to *brand*, and each year on the eastern border of the Kruger National Park, the Portuguese natives are alert to burn the veld on their side as early as possible, that they may thus tempt the animals over to the fate awaiting them.

On the other hand it is pointed out that the benefits of grass-burning are purely ephemeral, that the ticks are for the most part underground during the winter season, and so escape the fate that is supposed to overtake them ; that deprived of their natural cover, game birds and the smaller antelopes fall easy victims to their natural enemies. The terrible damage to the flora in general as a result of these fires is undeniable ; the softer and sweeter grasses recover, after they have passed, less readily than the ranker and less succulent types, while the destruction and warping of many of the better types of mature trees, and the complete immolation of most of the tiny saplings, are obvious even to the casual observer. The effects of indiscriminate grass-burning are also potentially dangerous to the grass-eating fauna generally. For instance, the year 1925 was distinguished in the Low-Veld by a very heavy rainfall in its earlier months. Consequently the grass grew long and thick, and from August onwards great fires, lighted by accident or design, swept the uninhabited parts of the country. In 1926 hardly any rain fell, and practically no new grass arose. By the end of the year matters were already fairly serious. The year 1927 proved nearly as dry as its predecessor. There were no seeds, all having been burned in the fires of 1925 ; as soon, after a shower of rain, as the young grass began to shoot up from the roots, it was

scorched off by the blazing sun ; finally the roots themselves became withered from the same cause, the ground above being absolutely bare. The whole country, indeed, looked like a brown and dusty " compound." Three inches of rain in October, 1927, brought up only rank weeds instead of grass in some places. The grazing species of animals died in hundreds, especially those favouring the more delicate kinds of grasses: great numbers wandered away to the Drakensberg foothills, and into Portuguese East Africa, in search of food. It was a time of real calamity. Species like reedbuck, which are comparatively slow of movement, and depend for safety from their enemies upon concealment, found no refuge, and suffered accordingly. Had the grass not been burned, the old herbage would have acted as a shade from the sun to the sprouting seeds, as well as to its own roots, and the situation would have been very different. Further, when no grass exists, heavy rains wash away the soil where tree roots are not present to hold the ground together, and thus the denudation of the country proceeds appreciably quicker than its natural tendency would otherwise decree. Probably the correct mean lies in very limited and careful burning between the end of March and the end of June, when the moisture still present ensures no serious and uncontrollable spread of the fires, and the minimum damage consequently accrues to fauna and flora.

In conclusion a few words may be said respecting exotic forest trees, so far as it has been possible to experiment with them in the drier regions of the Low-Veld. Given water and careful attention, coupled with adequate soil, many trees common to other hot countries will do well enough ; but left to themselves, and exposed to such trials and conditions of wild life as are natural to the zone, it appears that they are unable to survive or to continue their species. Out of a great number of exotics experimented with, the Australian cypress pine (*Callitris robusta*) has shown the most resistive qualities, though there are several others, notably the pepper tree (*Schinus molle*), the silk oak (*Grevillia robusta*), the jacaranda, and the belhambra (*Phytolacca diorca*), which, given a little care, have proved quite satisfactory.

PART II

ANIMAL LIFE

CHAPTER V

MAMMALS

Game in early days—Process of destruction—Game "drives" and traps—Rinderpest—Tsetse fly—Effects of South African War upon the game—Conditions after peace—Present position of the fauna—Indigenous species—Diseases—Calculation of numbers

A FORESTED country, all else being equal, is incapable of sustaining, mile for mile, as many of the larger herbivorous mammals as one bare of trees. There is less grazing ground to the acre, and, where trees grow thickly, pasture is apt to be proportionately scarce. Therefore, at its best, though it may have excelled in variety of species, the Low-Veld probably never attained, in the numerical abundance of its wild life, to the level of the plateau country during the latter's palmy days. Nevertheless, being then undoubtedly better watered than now, it must, about the middle of the nineteenth century, have veritably teemed with wild animals. Even at an earlier period, before inter-tribal wars had nearly exterminated the native population, game must have existed in immense numbers, for the hunting activities of each clan were strictly confined to within its own boundaries, and fire-arms were only found in the hands of occasional native and coloured ivory hunters from the High-Veld and the coast.

During the era of unrest, and in the years immediately following, these native hunters, usually in the employ of European traders, so largely increased in numbers that before the appearance to any extent of white men in the Low-Veld, the elephant had been exterminated or driven from the southern parts of the country, and, throughout all the area south of the Olifants River, lingered only here and there among the Lebombo Hills. The white rhinoceros seems to have disappeared about the same time, and it appears probable that the

final extinction of both species was due to the activities of Albassini's well-armed native hunters,[1] who through the course of many years made ivory and hide hunting their sole business.

From the early 'seventies onwards, the game gradually receded more and more to the east, until, by 1899, south of the Pretoria-Delagoa Bay Railway, and west of the Selati line, the larger types had practically been exterminated, and elsewhere were confined to a comparatively narrow strip abutting on the Portuguese Border. When, about 1873, Mr. W. Sanderson first saw the country south of the Olifants River, elands abounded in the Middle-Veld near to the present White River settlement, while the whole area comprising the foothills and the country east of them, was abundantly stocked with all the indigenous species of antelopes. Giraffe, buffalo and black rhinoceros were found in great numbers throughout the Low-Veld proper, and owing to the almost complete absence of native inhabitants, game generally was on the increase.

Thenceforward there came a change. Colonel E. G. Pennefather, formerly of the Inniskilling Dragoons, told the writer that when, in 1880, he accompanied the late Mr. Glynn on one of the latter's annual hunting trips, the larger animals had already become rather scarce in the western areas, and that wagons heavily loaded with biltong and giraffe hides were constantly met trekking homewards. Doubtless but for the presence of tsetse fly over a large portion of the eastern Low-Veld, all the larger animals would have been shot out within twenty years of the first appearance of the white hunters. As it was, the latter were prevented from taking their transport wagons and horses into many parts of the country, which had therefore to be hunted on foot, a method not at all popular with the Boer hunter of those days. Mr. Sanderson and his two brothers used to go into the fly belts with donkey wagons, placing the certain loss of the animals against the profit they expected to make out of hides and biltong. Usually they were out of pocket as the result of the venture, and so endeavoured each year to increase their bag in the hope of turning the scale. Undoubtedly up to 1892 the game within the fly belts suffered far

[1] See page 175.

less than that outside, and mainly at the hands of natives, who by then possessed a good many fire-arms—albeit of antiquated makes. The Selati Railway construction in 1893 brought a new type of hunter on the scene, in the person of the townsman, who would come up the line on a trolley or walk from Komati Poort, and, having no transport animals, was free to wander, accompanied by a few native carriers, as he chose through the fly belts.

The thick bush south of the Sabi River, from the temporary bridge eastwards to the Lebombo, continued to be the prerogative of the local natives, and it is they who seem primarily to have been responsible for the destruction, during the 'nineties, of nearly all the black rhinoceroses, just as their fathers had made a clean sweep of the square-lipped type, some thirty years previously. At this period, the ba-Hlangane were practically a clan of professional hunters, and they did enormous damage to the game, especially during the summer months, when the white men were absent from the Low-Veld.

North of the Olifants, the Amagwamba, ba-Venda and others, adepts in the use of the bow and poisoned arrow, were equally active. Great game drives were often held, and among the Lebombo Hills to this day may be seen the remains of the lines of pits into which the animals were stampeded during these hunts. A narrow defile between two steep hills was chosen when possible, and across it were dug many parallel rows of pits, each of them ten or twelve feet long, ten feet deep, and six feet wide at the top, narrowing towards the bottom. All were of course skilfully hidden by light sticks covered with grass, while the upper edges were buttressed with logs of hard wood, to prevent the earth giving way. The hunters would then form a semicircle, and, gradually closing in, slowly drive all the herds thus enclosed down-wind towards the gap in the hills. On nearing the chosen place, the animals would become more and more crowded and alarmed, until finding all other egress from the ring of their pursuers closed, they would dash, in a terrified, crowded mass, through the gorge, straight on the deadly line of pits, into which they would fall pell-mell, a kicking, struggling mass, many of them with broken limbs.

Those underneath were often crushed or suffocated to death by the weight of their companions. When the pits were full, and the rear of the herds, dashing over their fallen leaders, had stampeded away into the distance, the natives would spear to death all those on top, to keep the mass quiet, and would then at their leisure haul out, skin, and cut up as many animals as they required. Sometimes the bag was so large that there was more meat than could be carried away, and accordingly the animals at the bottom of the pit were left to die slowly. Almost at every place where there exists or has in the past existed some favourite drinking pool, may be seen the old filled-in remains of game pits, often scores together, dug in the game tracks to entrap unwary animals on their way to or from the water.

Very cleverly constructed snares of twisted raw hide were often employed, so designed that when an animal stepped on the inside of a stretched noose a spring was released, and the other end of the cord, attached to a bent sapling, went taut, thus tightening the noose and swinging up the creature suspended by one leg, to remain in this position until the hunters came along and disposed of him. Fall-traps and other snares of every imaginable kind were also employed. Dogs were used to run down waterbuck, kudu, reedbuck, warthog, and the young of all species. This sort of thing went on uninterruptedly the whole year round, and, added to the enormous toll taken by the numerous white hunters in winter, rapidly thinned out the herds.

In 1896 came the rinderpest, which nearly exterminated the kudu, and reduced the already much depleted buffalo herds to about a dozen individuals. After the passing of the rinderpest it was discovered that the tsetse fly, to which the game had owed its survival, had also disappeared. The reason for this sudden and complete elimination of *Glossina* from the whole of its formerly extensive haunts within the Low-Veld, and apparently indeed from every other spot in Africa which the rinderpest had visited, still remains a complete mystery. The casual and easy explanation that it vanished because, owing to the death of all the game, there was no more food available,

is easily disposed of by the fact that only certain species of the larger animals proved vulnerable to the disease, and that, in the case at least of the Low-Veld fly areas, even these were by no means exterminated. Enough kudu remained to allow the species, under protection, to become in less than twenty years, next to impala (which the rinderpest left entirely alone), the most numerous of all the bush-loving types. Even if, as is said, only a dozen buffalo were spared, surely these, strictly confined as they were to a relatively small area of dense bush in the heart of the fly belt, were enough to have saved at least some flies from dying of starvation.

The attempt to account for the disappearance of the tsetse fly by such crude reasoning as that often proffered, is understandable on the part of the mere man-in-the-street, who has no reason for specially devoting his thinking powers to the question; but is depressing when emanating from persons of scientific attainment, pointing, as it does, to lack of due examination of past and present conditions both of the area and of the animals inhabiting it. Even allowing for the temporary wanderings of animals to points outside the fly belts during the course of the epidemic, the insect is well known to be able to exist for a long time without a meal of blood, and so could easily have endured until the return of its hosts, especially seeing that bush-dwelling mammals are not in the habit of migrating far afield. It does seem to be a great pity that so little attention has been paid to the investigation of the true cause of the disappearance of the tsetse fly at the time of the rinderpest. Research work in that direction might indeed have far-reaching results, for could the basic reason be discovered, the tsetse problem, which has cost so much time and money, and which, in unscrupulous hands, has proved so facile a weapon for the destruction of all the larger forms of wild life, would at least be on the high road to complete solution.

Whether the tsetse fly will ever find a road of return to its old quarters in the Low-Veld is of course on the knees of the gods: at least it is safe to say that during the past thirty years there have been no indications of its approach. The nearest fly areas are those of Zululand, whence *pallidipes* was never,

owing to the incomplete permeation of the rinderpest, entirely eliminated, and some sections of Southern Rhodesia and Portuguese East Africa, a little south of the Zambesi, where *morsitans* is still found. There is thus a considerable margin in distance between any part of the Transvaal and the nearest fly belt, and as these separating areas are now largely occupied by cattle-owning natives, due warning would be received of any coming danger. If, indeed, anything so unfortunate as a return of the fly were to occur, it is the case that nearly all the areas in which it formerly throve are now included within the Kruger National Park, wherein no stock or other farming is permitted, while such former fly areas as abut on the Park have been mainly opened up for agricultural rather than for pastoral purposes, implying the presence of those large stretches of cleared and cultivated country which are at present the one proved means of getting rid of tsetse fly of all species.

Up to the outbreak of the South African War, in 1899, the fact that fly had disappeared had not been grasped by the winter trekkers, and therefore no serious campaign against the wild animals within the belts took place. For the first year of that war, except for occasional attacks by natives and the activities of small parties of war-evading white men, the game had a rest. At a later period, the Boer commandos, during their retreat from Komati Poort northwards, shot heavily along their line of march, but to no great distance on either side. After this the control, respecting the southern part, at least, of the Low-Veld, passed to Steinaecker's Horse, an irregular corps in the pay of the British, which maintained its headquarters at Komati Poort. Between October, 1900, and August, 1902, the members of this levy, and the natives employed by it, undoubtedly killed a great deal of game; but on the whole, between 1899 and 1902, the slaughter was less than it had been during any period of similar length since 1890.

Immediately after the conclusion of peace in 1902, partly in response to pressure by the Colonial Office, to whom the well-known naturalist and hunter, Mr. Abel Chapman, had submitted a moving appeal for the preservation of the relics of the Transvaal fauna, the old game reserve south of the Sabi

River[1] was reincarnated, and subsequently extended. At the same time an ordinance, designed to protect the game animals of the country more strictly than had hitherto been the case, came into force, and was on the whole fairly well carried out in practice. Game preservation was, of course, much aided by the temporary total disarmament of the civilian white population, and the complete cessation of winter trekking. More police than formerly were permanently stationed in the Low-Veld, and their efforts, added to those of the special staff appointed for the Game Reserve, did a great deal to check native snaring and hunting, while game drives on a large scale were completely stopped.

Fortunately, although the larger wild animals had been greatly reduced in numbers, and driven to seek refuge in the densest and most inaccessible parts of the Low-Veld, yet a sufficient nucleus of all species remained to allow of due increase. During the period between 1902 and the outbreak of the World War in 1914, all species multiplied exceedingly; the country between the Swazi border and the Crocodile River, and that embracing the foothills of the Drakensberg, nearly denuded in 1902, became well stocked, and shooting parties, usually limited to local residents and their guests from the High-Veld, found, during the shooting seasons, that game was becoming increasingly plentiful. From 1914 onwards more and more people, including now again the professional biltong and hide hunters, aided by the increased facilities regarding licences for hunting and fire-arms, and the growing use of motor cars, sought relaxation and profit in the pursuit of big game. There was also a recrudescence on a large scale of native poaching with snares, dogs and even fire-arms, all no doubt induced by the slack administration of the game laws.

In 1923 a large area, excised from the western part of the Game Reserve, nominally to be opened up for agricultural purposes, was in fact used merely as hunting ground by all and sundry. In 1926 the position in relation to the larger fauna was that the eastern areas of the Low-Veld, included by Act of Parliament within the National Park, were well, in some places

[1] First created by President Kruger, in 1898. See p. 188.

very well stocked, though it seemed probable that with better watering facilities, such as might be provided by the improvement of some of the natural rock dams barring the dry spruits, the country might hold with ease at least five times the number of animals actually present. Outside the National Park the game, both great and small, was rapidly disappearing, and in fact the adjoining areas, including the nearest part of Portuguese East Africa, were really fed by its overflow.

As regards species indigenous to the Low-Veld, the only one completely lost has been the white or square-lipped rhinoceros. In 1902 the elephant and the eland had actually disappeared, while several other species were within measureable distance of extinction; but at a later date both these named again made their appearance as immigrants from Portuguese Territory, and have thriven so well that in 1926 there were probably a hundred of the former, and many considerable herds of the latter in the country north of the Olifants River. The inyala was found to exist to the north of the Shingwedsi, a discovery of some importance, as the animal had not generally been understood to thrive in the Union of South Africa at any distance from the coast, or further north than the Maputa River, though professional hunters were well acquainted with its existence in Portuguese East Africa, north of the Limpopo.

The red or Natal duiker, a species confined to the wooded kloofs of the Drakensberg foothills, has been nearly or wholly exterminated by natives with snares and dogs; the vaal rhebuck, partial only to the tops of high flat hills, is not really a Low-Veld resident, and though a few specimens were believed to survive in the western areas, its final disappearance, where not specially preserved on private land, seems to be in sight. Oribi, though specimens have been occasionally noticed as far east as the Lebombo Flats, appear in the Low-Veld rather by force of circumstances than as willing visitors. Mountain reedbuck (rooi rhebuck) are localized to the slopes of the western foothills, but are there fairly numerous.

Other species of the larger herbivorous mammals have been fully preserved in the National Park, and occasionally are even

HIPPOPOTAMI IN KOMATI RIVER

These interesting creatures exist in all the larger and some of the smaller Low-Veld rivers

(*Photo by Lt.-Col. F. C. Hoare*)

ZEBRAS AT WATER

(*Photo by Lt.-Col. F. C. Hoare*)

well represented outside its boundaries ; blue wildebeest, for example, have existed as lately as 1928, in very large if usually much exaggerated numbers, throughout the Lebombo Flats south of Komati Poort. Other Low-Veld residents are the tsessebe, found in all the more open parts of the country ; roan and sable antelope, greater kudu, waterbuck (ringed), impala, reedbuck, bushbuck, duiker, steenbuck, Sharpe's steenbuck, bushpig, warthog, buffalo, Burchell's zebra, giraffe, with a few black rhinoceros surviving in the Shingwedsi area and in the lower Sabi bush. These black rhinos increase so slowly that, although it is over twenty-five years since they have been molested by man, they have, even now, hardly been seen at all, and never venture outside the densest part of that formidable thorn bush which has for so long formed their stronghold.

Among the nocturnal creatures that spend their days in deep underground burrows, are the ant-bear, the scaly ant-eater, and the porcupine : the reeds fringing the rivers are the home of the curious animal known as cane rat, claiming affinities with the porcupine, whose spines the cane rat's bristly coat seems on its way to emulate. The ratel, or honey-badger, that amazingly courageous and tough little honey-lover, may now and then, of an early morning, be noticed, intent on his own business, moving about with the air of one who neither threatens nor fears. The following incident may serve to indicate some of the qualities of the ratel.

One day, while searching, with the assistance of four large dogs, for a wounded lion which had got into a piece of thick bush, the writer suddenly heard a terrific commotion arise from the bottom of a small bramble-choked ravine. Forcing a difficult way through, the dogs were seen to be holding each one leg of a not quite full grown ratel, and were pulling in different directions, with the apparent object of tearing him asunder. The body of the ratel was completely off the ground, and the head hung loose ; every now and then, when he saw a chance, he would make his teeth meet in such part of the nearest dog's anatomy as he could reach. The struggle having been in process for some time before it was possible to reach the scene of it, the dogs were not only all

more or less badly bitten, but were so much out of breath that there was little difficulty in beating them off, when they threw themselves down panting—all except a very fierce cross-bred Irish terrier, which had now got the ratel on its back, and was worrying at its throat, paying no attention to blows and shouts. Suddenly, it was impossible to see exactly how, the ratel managed to get a firm grip on the dog's forepaw, and held on with such goodwill that the assailant at last let go his hold, and concentrated his energies on himself getting free, which, having been accomplished, he limped off yelling. Then the ratel, after an ineffective but determined dart at my own legs, shook himself, and ambled off, apparently neither in a great hurry nor much hurt. The fact is that the skins of these creatures are not only so thick as to defy the teeth even of the largest dog, but so loose that no hold can be obtained upon the underlying tissues, and accordingly, no matter how long or severe may have been the worrying, there is seldom any very serious injury to the vital parts. On the other hand, his own jaws are so powerful and his teeth so sharp, that even against a number of enemies he can usually give more than he gets.

In addition to the animals already enumerated, there are in the Low-Veld three kinds of rock rabbits, two species of hares, two of squirrels, a larger and a smaller type of "bush-baby" or tree lemur, a great many of bush-rats, mice, and shrews, and at least one genus of mole-rat. The queer little fluffy, long-tailed bush-babies, with their inquisitive pointed snouts, are seldom seen, as they spend their time amid the foliage of the largest and most densely-leafed of the evergreen trees. At night they make their presence known far and wide by the cries which have earned for them their popular name. Their distribution is rather irregular. Under the foothills of the Berg they are found consistently where suitable forest exists. Eastwards towards the Lebombo they occur in isolated patches, and are known at only two widely-separated spots along the Sabi River for fifty miles of its course west of these hills. They have never been reported from the flat country on the Transvaal side of the latter, but are

said to become numerous in Portuguese territory to the east. They are able to jump great distances from tree to tree and from one branch to another; in fact I have heard them referred to by local Europeans as "flying squirrels." When the natives are extracting sap from the stems of the palms to make palm wine, they are accustomed to leave the cups and other vessels which catch the liquid out all night, that they may be full in the morning. The bush-babies have discovered this, and being very fond of the sweet juice, they often take heavy toll. Sometimes it happens that the liquid has become fermented, and then the poor marauders, overcome by their potations, may, in due course, be found lying about on the ground helplessly intoxicated, thus falling an easy prey to human or other enemies.

There are about twenty ordinary, and two fruit-eating types of bats; the vervet and Sykes' monkeys, and chacma baboon. Carnivorous mammals comprise the African hunting dog (*Lycaon*), two kinds of jackals, the spotted and the brown hyenas—the latter rare; otters in all the rivers; at least eight species of mongooses; serval, caracal, two kinds of genets, civet, wild cat (*F. ocreata*), chita, leopard, and lion.

The lion is distributed throughout, wherever the larger herbivora abound, and the writer estimated in 1926 that the total number existing was about eight hundred, of which some five hundred were indigenous to the National Park. Within the confines of the latter they can find food so easily, in consequence of the strict control exercised over their numbers —the increase of their natural prey being at the same time nearly unrestricted—that they have not the same inducement to maintain themselves by stock killing, as is sometimes the case where the game has been reduced through man's agency. Man-eaters are entirely unknown, and since 1902, with the exception of the famous case of Mr. Wolhuter, described in "Animal Life in Africa," there has not within the National Park, nor, indeed, within the whole Low-Veld, occurred a single authenticated case of a lion having attacked a human being unprovoked.

In former days when game was scarce, driven by hunger,

lions were often a very real danger not only to stock but to human life. During 1901, when Steinaecker's Horse were maintaining a detachment at Sabi Bridge, one white man, several natives, and a number of horses were killed in a short period by a single man-eating lion ; while in the days before the South African War there were many instances of natives, especially women, having been carried off even from their villages. On one occasion, it is related, a lion sprang at night on to the roof of a hut, in which a woman was sleeping alone, and, having torn aside the thatch, dropped down into the interior, and seized the occupant. Aroused by her screams, the people turned out, and set fire to the hut, whereupon the lion escaped by the same way he had entered, and the woman perished in the flames.

After the defeat of Gungunyane by the Portuguese, in 1896, the path leading from Moçambique Province to the Drakensberg by way of the Imbabate River was for months the route whereby Tshangane refugees thronged into the Transvaal. Many of these people were wounded, and all having fled hurriedly from their homes, were completely destitute. So they died of their injuries, of hunger and of exhaustion, in great numbers, and the bodies were left lying by the wayside. The lions of that district, in which game was then scarce, quickly acquired a taste for human flesh, and from feeding upon dead bodies, contracted the habit of attacking living persons, with the result that for many years the road had a bad name, and even as late as 1906, benighted travellers were accustomed to build themselves roosts in trees, a proceeding entirely unknown at the present day.

The only specific infectious or contagious diseases from which African wild animals suffer are imported ones, such as rinderpest, against which they have not acquired immunity, and they always contract them originally from domestic animals. Although thus free from ordinary endemic diseases, in seasons of exceptional drought or exceptional rain, many of the older and weaker animals contract bowel or liver complaints, and die. For instance, at the end of a long drought in 1916, wildebeest, waterbuck, reedbuck, duiker and warthog suc-

cumbed in considerable numbers; all the game was in low condition, and the animals usually died near the water-holes. The mortality ceased upon the appearance of the young grass. During the summer of 1922–23, wildebeest and waterbuck —apparently males only—died, in the course of exceptionally heavy rains, from a complaint which affected their legs. The low condition of the males, consequent on the current mating season, may have rendered them peculiarly liable to the attacks of some parasite induced by the hot damp conditions of ground and atmosphere.

In October, 1923, a wildebeest bull was found dead, very thin, a discharge coming from his nose, and his intestines inflamed—this was in the drought just before the first rains fell. It may be the case that when the veld is all burnt, the dry incinerated herbage contains some chemical which sets up internal inflammation. I have also seen waterbuck whose deaths had apparently been caused by a peculiar gangrenous condition of the chest and soft fleshy parts of the body, which gave out a most offensive smell: the cases were all isolated ones, and seemed to have nothing contagious about them. As soon as an animal begins to get weak it is attacked by swarms of grass ticks, creatures which are seldom found on perfectly healthy wild herbivorous animals while in good condition, and there is no doubt that the victim often dies from nothing else but loss of blood. It has been observed that where cattle-dips have been put up, the game, at a distance from the usually fairly well tick-cleared grazing grounds of the stock, have died in a marked degree from tick infestation. A reasonable explanation of this phenomenon seems to be that the tick birds (*Buphaga*), which always swarm in a game country, having died from eating the arsenic-impregnated ticks on the cattle, have become so reduced in numbers as to be unable to perform adequately their duty of keeping the ticks on the wild animals down to Nature's level. Under conditions not entirely artificial it is sometimes dangerous to interfere with the working of natural machinery. It seems at any rate to be the case that since stock dipping has been generally adopted in the Low-Veld the wild game has become more tick-infested than

formerly, and this can be attributed only to the decrease of the tick birds.

It is obviously impossible to make any census of wild game over a huge extent of forested country except in the roughest manner; but, as regards the Low-Veld, at least nine-tenths of the animals are to be found either within the present National Park itself, or in the three thousand mile area excised from the old Sabi Game Reserve at the end of 1923. In the last-named country extensive slaughter by whites and natives has recently, of course, greatly reduced and disturbed the indigenous stock, and it is doubtful if much of it has migrated permanently to the sanctuary. The tendency of all species, at least of the antelopes, is to live and die on their own ranges, which they only leave temporarily owing to local scarcity of food or water, or from persecution, and to which they return as soon as the conditions, whatever they were, which induced their departure, seem to have abated. The results of careful watching of the herds extending over many years, and the long experience of the staff in the habits of wild animals, have, however, rendered possible a rough calculation of numbers, in respect at least of the National Park, and this, embodied in the writer's annual report to the Government for the year 1925, has, in default of anything better, been employed as a working hypothesis when official figures are demanded. The estimated approximate number of adult herbivorous animals of all species excepting duiker and steenbuck, which are relatively less numerous in the Low-Veld proper than in the foothill country now excluded from the sanctuary, was two hundred and fifty thousand, and in all probability it is an underestimate.

Some of the calculations regarding increase may be deemed interesting. The gross increase of the larger antelopes under natural conditions may be estimated at about thirty per cent. annually, and, as things were in 1925, the net increase at about fifteen per cent. In a purely natural environment, where there is no destruction by man, but where, on the other hand, the beasts of prey are not kept in check at all, the net increase would be about five per cent. per annum. In the early days of the Game Reserve the writer used to calculate

the annual net increase at ten per cent., but later it increased to fifteen. For the difference between the gross increase of thirty per cent. and the net increase of fifteen per cent., it is believed that ten per cent. is due to lions, and about five per cent. to all other causes, including wild dogs, chitas, leopards, crocodiles, snakes, poachers, accidents, deaths in calving, single combats between males, and deaths from old age after fifteen years. The latter is more or less the age to which the larger antelopes would probably attain in a wild state amid reasonably favourable surroundings and adequate food supply, provided they were subject to attack neither by man nor by beasts of prey. Under such conditions there would have to be deducted from the gross annual increase of thirty per cent. an old-age death-rate of a little over six per cent., and deaths from all other causes, namely combats between males, calving, sickness, and snake-bite, amounting to about three and a half per cent. ; giving a net annual increase of roughly twenty per cent.

Of course where carnivora are present, mortality from the above causes is considerably reduced, since very few animals are permitted to die either of old age or of sickness, forming, as they do under such disabilities, the easiest kind of prey. In the National Park, therefore, there are reasonable grounds for supposing that the attacks of all carnivora and poachers combined are responsible for only a five per cent. higher rate of mortality than would be the case were the game free from any kind of molestation. Taking the Park right through, it is calculated that for the more fertile portions thirty-four, and for the relatively barren areas about six animals, may be allowed to the square mile. The calculation of the number of lions existing indicated that the annual toll taken by the staff just about equalled the net annual breeding increase.

Wild dogs were, not only relatively to the game but actually, much less in numbers in 1925 than they were in 1902, and there was a notable decrease in numbers between 1920 and 1923, whether due to the efforts of the staff or to some natural cause it is difficult to say, though nothing was noted to show that anything of the latter kind had been at work. These

creatures, though scientifically very interesting, are, nevertheless, a serious pest in a sanctuary, since they prey largely on the young of the big game, as well as on smaller antelope species, and being specially active during the breeding season of the herbivora, they do an immense amount of harm. Chitas are destructive also, but they are not very prolific animals in the Low-Veld, and confine themselves to the smaller antelopes, and to the hornless females of larger types. The damage done by leopards is comparatively insignificant, since they prey largely upon rodents and feathered game, and only occasionally vary their diet with an impala, bushbuck, reedbuck, or lesser antelope.

CHAPTER VI

MAMMALS (*Continued*)

Drinking habits—Eyesight—Colouration—Fear—Social conduct—Cannibalism—Abnormal animals—Defensive tactics—Value of sanctuaries

To see the wild life of the Low-Veld at its best, a visit should be paid to the National Park towards the conclusion of the dry season. Between the end of August and the end of October the animals, having exhausted the last drop of muddy water in the bush pans, crowd down to the neighbourhood of the permanent rivers and large pools. They do this only in response to the spur of necessity; fear of crocodiles makes them very unwilling to drink from streams in whose waters these reptiles are likely to be lurking, and by whose reedy banks lions and leopards may be expected to lie in wait. Even when thirst has driven out fear, they seek little detached pools and inlets, and carefully avoid the main streams.

Towards the end of the Southern winter the long grass has either been burned, or has been eaten short, the bush has largely shed its leaf, and an uninterrupted view is possible for a considerable distance. Within the eight thousand square miles of the Park, the game has been practically undisturbed for twenty-six years; by day it is unsuspicious of danger, and provided care be taken with regard to the wind, and the observer remains reasonably quiet, he may see great masses of animals of half a dozen species mixed together, drinking, grazing and standing unconcernedly about within fifty yards of him. There are few places now remaining in Africa where such a sight is possible.

Let us go to Tshokwane, a camp on the Manzemntondo River, some twenty-five miles north of Sabi Bridge. Here the river makes a nearly complete circle in the space of about

a mile. There are deep permanent pools at intervals, and the grass is short and sweet. The plain-loving animals—wildebeeste and tsessebe—crowd to the flats in the bend of the river : the thin thorn bush to the west is full of sable, kudu, and impala, while the rocky Lebombo in the east is the favourite haunt of numbers of klipspringers and of huge herds of waterbuck. Great stretches of reeds and rank grass, which never burn, are full of reedbuck ; bushbuck fill the patches of scrub crowning the river banks at intervals ; steenbuck, duiker, and warthog are scattered throughout the country underlying the hills. Zebra, which in the early part of the winter migrate westwards, about the end of September come to the neighbourhood of Tshokwane in great herds, and their whinnying fills the bush by day and night. Giraffe arrive from the north, and a few buffalo are found in the dense bush south of the river bend.

Though at any time of the year large herds of animals of all species are constantly present, for two or three months, Tshokwane becomes a true game paradise, one seldom to be equalled and never excelled elsewhere. Other spots there are in the Park where almost as many animals may be present —Saliji, Ngwanetzi, Malelane—but nowhere else can they be seen against such a varied background of hill, plain, and palm-fringed river. Lions, of course, find the spot an ideal hunting ground ; every night their great voices swell in chorus among the hills, and sometimes in the early mornings they may even be seen, as they wend their way to their daily resting-places among the rocks of the Lebombo, or the reeds and palms of the Manzemntondo River.

Let us go, then, to some point on this river, and there watch the animals as they come to water. It is not necessary to walk far—within half a mile from camp lies a favourite pool, and if we are lucky we may see a sight which we shall long remember. But there exists a certain element of uncertainty. Antelopes vary a good deal in their drinking habits. A herd, after watering at the same place for a few consecutive days, may suddenly begin doing so every second day, and even less frequently. The hour, even at the same season of the year,

may vary between early morning, midday and night. It is not possible to calculate from the heat or other phase of the weather what time the animals will choose. I have known them drink in the early morning during the coldest part of the winter, and sometimes, in summer, to choose the hottest hour of the day, when they might reasonably have been expected to be dozing in the shade. It depends partly on whether lions have lately been busy in the neighbourhood. If so, the game usually drinks rather late during the daytime, for they know their enemies will then be sleeping soundly. In parts of the Low-Veld, outside the limits of the sanctuary, where the big game is accustomed to be harassed by human hunters, it generally drinks between sunset and sunrise, and avoids the vicinity of the rivers during daylight. Normally, that is if they have been left quite undisturbed for some time, antelopes and zebras like to come to the water between nine in the morning and midday in winter, and between six and nine a.m. during the summer. Near Sabi Bridge, where I suppose there are more impala present than in any area of similar size in the world, these thirsty creatures like to drink twice a day, once in the forenoon, and again between three and five o'clock in the afternoon. Of course, during the cold season of the year all game is less thirsty, and for a few days after a fall of rain the grass is so wet that it suffices for their needs.

Having arrived at our selected pool, after having made sure that the animals have been drinking there regularly for the last few days, we will conceal ourselves on its leeward side, first cutting a few reeds to form a screen. Several herds are already to be seen standing or grazing on the edge of the bush, some three hundred yards away. Thence to the drinking-place the ground slopes down gently, and is quite devoid of any covert. More and more herds can be seen filing slowly through the trees in the background, and the first-comers begin slowly to graze towards us.

It is easy to tell when they are approaching the water with a view to drinking, and when they intend merely to graze along the banks. In the former case, they draw near with the greatest caution, stopping every few minutes to gaze around,

especially should the wind be behind them, for then they must trust to their eyes alone to warn them of danger. If the wind is towards them, or other animals can be seen drinking, they show much more confidence. There, for instance, slowly approaching with many pauses, comes a troop of some fifty wildebeeste in single file. When about forty yards short of the water, all turn, as if by word of command, and, tails waving and heads tossing, stampede madly for a hundred yards ; then suddenly stop and look back. This manœuvre is to induce any concealed carnivore to disclose itself. As, on the present occasion, everything remains quiet, the herd slowly retraces its steps.

Now, when again forty yards away from the water, it halts, and an old cow, separating herself from her companions, walks down alone. Mark how carefully she scans every suspicious object, and how still she stands as she gazes. Perhaps she may spend half an hour in this way, while the others unconcernedly graze about. She is the trusted scout, and they have entire confidence in her wisdom. Suddenly she makes up her mind that all is well, and walks straight down to drink, followed immediately by the rest of the herd. Wildebeeste and zebra drink to the accompaniment of much noise and skylarking. A herd of waterbuck and one of zebra follow the first-comers. These show little hesitation, for they can see the wildebeeste already all over the bank, and even right in the water. The zebra at once come trotting down, kicking up their heels and playfully biting one another.

A pushing, jostling mass of over a hundred animals is soon at the drinking-place, and on the bank just above it. Disputes among animals of the same kind are frequent ; between those of different species there seems to exist a mutual tolerance and forbearance, though waterbuck always give way to both wildebeeste and zebra. There are occasional false alarms and short stampedes, when the whole mass of animals, with much splashing, dashes out of the water and up the bank. A single snort from an individual, and every head is raised at once. It is remarkable how much less attention animals pay to alarm signals from members of other species than they do to

A WARTHOG
(*Photo by Lt.-Col. F. C. Hoare*)

TSESSEBE AND WILDEBEESTE: A CROWDED MASS OF ANIMALS NEAR A DRINKING PLACE
(*Photo by Lt.-Col. F. C. Hoare*)

warnings from those of their own. The whistle of a reedbuck, however, is a signal of which all other game at once take heed. Reedbuck are very observant, and probably this is realized by the others. They always whistle as if they meant it. Their bodies shake with the effort of expelling the air from their nostrils, and in a locality where they are numerous, their piercing whistles are the commonest of night sounds. When reedbuck are galloping, the glands which are present under their flanks, make a curious squeaking noise.

So soon as all the members of a herd have finished drinking, they rally, form single file, and walk straight away from the water, feeling no doubt that it is unwise to linger in so dangerous a vicinity longer than necessary. While the antelopes and zebras are busy round the pool, a family of warthogs comes trotting down from the bush—father, mother, and two half-grown youngsters. We notice that their tails are kept down in their natural position ; but a few minutes later, consequent on a partial stampede from the water of a herd of zebra, the warthogs stand uncertainly on the top of the bank, their tails held stiffly erect. Should they make off, each tail will remain perpendicular, the distal fourth part wobbling to and fro as its owner trots along, but the extreme tip bent over one way or the other at a right angle. This action of the tail is very interesting. Some very strong tendons extend from the root nearly to the extremity of the tip, and by their aid the animal is able to raise or depress the tail at will. The inch or so at the extreme tip is slightly flattened, is composed of gristle, and holds the roots of the tail-tuft bristles. This tip is not controlled by the tail muscles, and does not work in harmony with the rest of the member, so when the tail is raised vertically, the tip usually droops one way or the other, and remains at a constant angle. The bristles fringing it are too stiff to blow about in a breeze.

If a troop of baboons should come down, it will be almost impossible to evade their vigilant scrutiny ; every stray tree in the neighbourhood becomes a look-out post for a sentry, who, from his elevated position, is well able to see over the tops of the reeds and long grass, and so detect the presence of any

hidden danger. While I was watching a pool where a troop of baboons was drinking, a lurking chita suddenly made a dash at a detached female. Immediately there arose a terrific clamour of shrieks, mingled with the deep angry barks of the old males, two or three of which at once charged the enemy. The latter did not pause to consider matters, but retreated incontinently, pursued for several hundred yards by a big "old man." As he fled, the chita, though careful not to admit his slow-moving pursuer to close quarters, evidently realized that there was no need for special effort, and proceeded at a loping canter, sometimes pausing till the baboon came within three or four yards of him.

In the Low-Veld, elephants, buffaloes and all carnivora drink at night. The first named are not at present found far south of the Olifants River, but north of it, especially near the Letaba, there are several fair-sized herds. From long immunity they have come almost to disregard the presence of human beings, and are sometimes rather a trial. For instance, an elephant has been known to pull the thatch off a store hut in a village that he might get at the grain which he realized was within. Since, in a sanctuary, more drastic methods are taboo, I have found the judicious use of rockets directed towards the animals, to be sometimes efficacious in scaring them from places where they have no rightful business. Not long ago a single bull elephant in broad daylight came walking up a hill right into the white ranger's station near the Letaba River. When he was within some fifty yards of the house, the dogs rushed out barking, which seemed to annoy him; but after a few minutes of tense anxiety lest he would pursue his tormentors and incidentally knock down the rather fragile homestead, he decided, though under protest, to go away.

Elephants and rhinoceroses have a very keen sense of smell, but are so near-sighted that they are unable to distinguish a motionless human being, whom they have not winded, from a tree stump, even at quite a short distance. The primates (baboons and monkeys), on the contrary, have extraordinarily sharp eyesight, but little more sense of smell than man himself. Most other wild animals, though they always rely on their noses

rather than on their eyes, possess remarkably keen sight, and, except the primates, can see very well in the dark. In this last respect the cat tribe are the most gifted, and from choice seek their prey amid what to human eyes appears to be inky blackness, accompanied, to be quite ideal, by wind and rain. On moonlit nights, lions seldom hunt, realizing that they are then at a disadvantage with their quarry; wild dogs and chitas, on the other hand, which rely on speed to catch their game, are crepuscular by habit, and never hunt at night unless there is a fairly good moon.

The herbivorous animals cannot see so well at night as the felines, yet even then their eyesight is good enough often to detect danger in time to escape from it, and they are by no means entirely dependent on their sense of smell. All creatures which can see in the dark react strongly to a light flashed into their eyes at night; the carnivores reflecting greenish-yellow, and the antelopes bright red. At Sabi Bridge, in the Game Reserve, the impala always came close up to the garden fence after dark, and I often amused myself by walking out after dinner with a head-lamp attached to my hat-band. It was curious to see everywhere points of red light darting hither and thither like fire-flies, the animals themselves being quite invisible. The experience was similar when going among the dogs in the compound; but the moving lights were then, of course, greenish-yellow, and only the eyes of a certain grey-eyed dog reflected deep crimson. The eyes of a lion or leopard seem really to blaze when the light shines directly into them; but of course there is nothing spontaneous about this. If the eyes of predatory beasts glowed of their own energy at night, they would obviously betray the presence of their owners to the game, which would then easily avoid capture.

In a forested country, all wild animals which are accustomed to being preyed upon rely for their first line of defence upon concealment: it is only when they think they are observed, or feel they cannot escape observation, that they seek refuge in flight. Every hunter knows how difficult it is to spot an animal standing perfectly still in covert, and all animals, whether herbivores or carnivores, certainly find still greater

difficulty than man in identifying stationary objects. It is not so much a matter of defective eyesight, for they nearly all can distinguish moving figures at very long distances, as, it must be surmised, of defective intelligence—to adopt a simile, the brain does not readily decode the message sent to it by the eyes. The elephant, of course, is an exception ; he is handicapped only by his defective vision, and not by any lack of reasoning power.

The carnivores possess highly developed brains, and their intelligence is much greater than that of the animals on which they prey ; but alert and sagacious as they are, they yet find great difficulty in classifying anything stationary. In lion hunting on foot, immobility on the part of the hunter is often his best safeguard in a critical situation, and no doubt many a fatal accident might have been avoided had the victim of it known or observed the excellent rule of keeping still.

The apparent blindness of wild animals is often astonishing. Up or across the wind an antelope or a zebra will walk quite unconcernedly in the open to within a dozen paces of a man sitting or standing perfectly motionless, and even when arrived within that short distance, will stand staring and snorting for some time before concluding it time to be off. Two or three years ago, I had an interesting experience of this lack of perception in the case of a lion. Two of these animals, both males, had been marked into a small piece of bush, and it was decided to drive them out. There was another similar covert about two hundred yards distant, for which it seemed certain they would make, and therefore I sat down beside a small and leafless bush, half way between the two, and seventy yards back from the expected course of the lions. I felt I had a good commanding position, and when the drive began, my eyes were glued to the spot whence I expected the animals to emerge. Suddenly I heard a slight padding sound to my right rear, and glancing over my shoulder, saw, already only some thirty yards distant, a big male lion coming straight for me at a steady gallop. There were three courses open, and not much time to decide on the best. If I fired and did not stop him dead, his impetus might carry him right on to me ; if I jumped

up and shouted, the chances were I would turn him, but he seemed a little too close for the safety of this experiment; so I chose the easiest of the three, and sat quite still, reflecting that he was certain to avoid my little bush. Sure enough, when about five yards away, he swerved to his right; but he passed me so close that I could hear his breathing, and also was able to note (with great satisfaction) that his eyes were steadily fixed to his front. I afterwards measured with a tape the distance at which he had passed, and found it to have been seven feet! There was absolutely nothing between us; yet he had not the slightest suspicion of my presence. The wind, of course, was blowing from him to me, but any human being, baboon, or monkey, would undoubtedly instantly have seen me from the edge of the covert a hundred yards away.

In my own experience, baboons and monkeys are the only wild animals which cannot be deceived by immobility on the part of the unconcealed observer, and their promptness in detecting his presence may safely be attributed to their high intelligence, and to the fact that they have to rely upon their eyes alone to warn them of danger. To observe those animals without alarming them, therefore, the direction of the wind may largely be disregarded, but, on the other hand, the watcher must take the greatest trouble in concealing himself; otherwise, however motionless he may sit, very soon a quick cry of alarm, followed by a general scamper, will cut short his study of their habits.

Limitation of perceptive vision in wild animals has some bearing on the question of protective coloration. We know little of how colours appear to the lower animals, though it is not unreasonable to suppose that these are as much inferior to savages in ability to recognize gradations of tint, as the latter are to civilized man. White readily provokes attention, as all hunters know. Some antelopes when in flight curl their tails over their backs, thus displaying the white underneath, a habit certainly attractive and not protective. As has been already remarked, so long as a wild animal in close country remains motionless it stands a good chance of being unobserved, whatever its colour; but the moment it moves ever so slightly,

it is detected, when colour does not enter into the matter at all. By night, when jungle law is most active, all colours are to our eyes the same ; but we have of course no idea how things then appear to the animals, with their very different eyesight. Night, however, is the period when the wild creatures move about and feed, just as day is that when they mainly repose, and it is safe to say that game animals rely during the hours of darkness on their active senses for protection from danger, rather than on any passive quality, such as colour. Most of them prefer, after dark, to leave covert, and to feed in more or less open spaces, though of course far more conspicuous there than they would be in thick bush, and they only return to the shelter of the forests after daylight.

With respect to the carnivores, especially the felines, whether it be due to their general coloration, or to their method of movement, they appear to human eyes, by moonlight or by starlight, almost indistinguishable from their background. It is quite easy to see a dog under circumstances in which a lion or a leopard are invisible. These cats have also a way of suddenly looming up, and as suddenly disappearing, which is almost uncanny. Anyone who has sat up for them at night knows this well. I remember watching a " kill," upon which a troop of eight lions were busily engaged. I was not more than twelve feet from them, and was looking down from an angle of about sixty degrees. It was moonlight, with occasional drifting clouds, and the shadow of the trees threw a criss-cross pattern over everything. Individuals kept arriving and leaving from time to time, but it was impossible to note where they came from or where they went to ; they were like faint shadows smoothly gliding from and into obscurity. Even those lying round the carcass close at hand appeared just a moving, snarling, chewing mass of light brown, hardly distinguishable from the short brown grass on which they were extended.

At one time I used often to watch a pool which was a favourite night drinking-place for all the local carnivora. It lay in the middle of an open space, and I always chose bright moonlit nights for my vigil, I myself being concealed in deep shadow.

It looked as clear as day, and yet at only twenty-five paces, it was most difficult to see the animals distinctly. Lions, leopards, hyenas, and jackals, all appeared to be of the same faint grey colour, hardly distinguishable from the sand round the pool, and when they chanced to stand so that trees formed the background they became quite invisible. That for some reason there is a tendency for the colours and markings of wild animals to be in sympathy with their setting there is little doubt; it is only necessary to reflect on the pale hues of the desert types, and the rich colours and varied markings of the species favouring moist areas covered with luxuriant vegetation, to realize this. How far conditions of natural environment may have imposed these variations through a gradual process of selection, it is at present difficult to say.

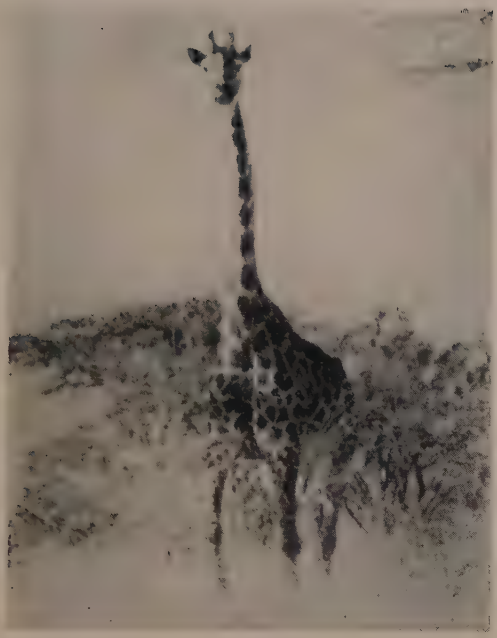
Fear of definite objects among wild animals is probably transmitted socially, or acquired by personal experience, and is not inherent. Very young creatures display no fear whatever; but after a week or two, though separated from their elders, they develop certain traits of suspicion which are probably inherited; they feel instinctively perhaps that strange objects whose smell they do not recognize must be treated with caution until found to be harmless, and sudden movements may cause alarm; but baby lions and baby antelopes show no more dread of man than do kittens and calves. The young of different and mutually inimical species will readily play together. But it does not take many days for the wild mother to instil a due reverence for its surroundings into her offspring; every scent borne by the breeze conveys some message of good or evil, which is instantly passed on, and duly assimilated. In a very few weeks the little creature has learnt its lesson; the caution of the wild has possessed its inmost being.

Fear is the dominant factor under jungle law: nature is very hard and ruthless to her children. Man, who by his superior brain has smoothed for himself the rough edges of his environment, has added a thousandfold to the terrors which beset the lives of the jungle dwellers. He has shown himself by far the most savage and relentless of all the predatory

animals. He alone slays wantonly, or for reasons outside his own natural requirements. No other creature deliberately kills one of another species except in response to the promptings of hunger. The charges made by wounded or frightened animals upon their human pursuers are usually the results of desperate terror and not of natural ferocity. In captivity it is not always the same ; the animals have then, from familiarity with him, largely lost their natural dread of man, and may become dangerous for many reasons.

Animals have their moods, their passions, their individual likes and dislikes, no less than human beings. The criminal or anti-social instinct is also occasionally present. In his "Minds and Manners of Wild Animals," Dr. Hornaday quotes various instances in proof of this, from his own experiences in the New York Zoological Park and elsewhere. Rules of social conduct exist, which are strictly observed. A normal adult of either sex is kind and patient with all young animals, and a female will even allow the calf of another which has been killed to suckle along with her own, a practice which has induced the belief that antelopes sometimes give birth to twins. A male is generally forbearing with a female, and, under ordinary circumstances, habitually gives way to her. Certain ill-disposed individuals sometimes break the rules, but he or she is always the exception—a criminal, in fact. A bad-tempered old lion sometimes strikes with his paw and kills a cub which has pushed in too eagerly to feed or drink, and has thus disturbed him ; such an act would at once be practically resented by the mother if at hand. The lower animals have no organization for punishing transgressors of their social laws ; but evil-tempered individuals are seldom found consorting with their kind.

The males of all species contend fiercely with one another during the mating season, and the combats often end fatally. The younger lions sometimes fight to the death, but the more mature males appear seldom to push things to this extreme. Among the antelopes, my experience is that the impalas, which are otherwise a timid species, kill each other more frequently than any other kind of buck present in the Low-Veld, and the



AN INQUISITIVE GIRAFFE
He came close up to investigate the camera
(*Photo by Lt.-Col. F. C. Hoare*)

GOODBYE !
The wind has borne a hostile message to the drinking animals
(*Photo by Lt.-Col. F. C. Hoare*)

females, too, are sometimes fatally injured during the struggles for their favours. When fighting with one another, antelopes lock their horns, and are very agile in moving their bodies from side to side as each strives to force the other backwards. When one feels he is getting the worst of it, he jumps away suddenly, keeping his face to the enemy, and does not turn while within reach of the opposing horns for fear of a fatal thrust in the flank. Wildebeeste and tsessebe usually kneel down when fighting. Waterbuck struggle long, and are sometimes found standing side by side with their horns firmly interlocked. Male antelopes may be so engrossed in their duels as hardly to notice the approach of a human being.

While among the herbivora there is warfare only between members of the same species, carnivorous animals are not subject to such restriction ; they attack and kill any creatures which they can overcome, and which they consider good to eat. In the Low-Veld all the felines, but lions most noticeably, perhaps because their habits are the most readily observable, are prone to cannibalism on certain occasions. Exactly why they practise it is something of a mystery. But if a male lion is shot, and the carcass left out overnight, it is almost certain to be found in the morning partially devoured by his companion or companions. The belly is generally ripped open, and the softer parts of the hindquarters eaten.

There is apparently some sexual consideration present in this cannibalism. For instance, males do not eat females, and females seldom eat males. A male lion, if he gets the chance, will nearly always eat another which has been his rival in courting, and which has been killed either by himself or by some hunter. Females sometimes eat females, but cannibalism is much more prevalent between the members of the other sex. This unnatural appetite has nothing to do with hunger, for in my experience it has constantly occurred when the lions were full fed. I had no fewer than four examples of it within three months, three of a lion eating his male companion, and the other of two lionesses eating a male—the latter one of the few cases of the kind I have observed. When it has been necessary to leave the carcass of a male lion out

all night, it has usually been found in the morning partially eaten by another male, and several good skins have been spoiled in consequence. All Low-Veld natives are familiar with this trait in lions, which is also quite common among chitas, though there have been fewer opportunities for observation in connexion with this species. Cannibalism appears to be confined to the cat tribe; at any rate in the Low-Veld I have never noticed any inclination towards it on the part of other carnivorous mammals.

While a tendency to cannibalism must therefore be considered specific among lions, and not the prerogative of a few abnormal animals, man-eating, that is the tendency to attack human beings deliberately, with a view to preying upon them, is distinctly unnatural. The average bush lion fully shares the terror of man which animates the other wild creatures. Undoubtedly one of the first, if not the first thing which a lioness instils into her young cubs, so soon as they are grown sufficiently to accompany her abroad, is to flee or hide from man whenever and wherever he may be encountered, and this lesson lasts the cub through life unless and until some accidental occurrence rids him of his acquired fear. I have sometimes reflected how very fortunate a thing it is for human beings that our Low-Veld lions have no connexion with those ferocious creatures of popular fancy which spend their time lying in wait for the passer-by. Were their habits such as they are represented to be, the Low-Veld bush would indeed be a place of terror, and the warfare would probably be a good deal less one-sided than is actually the case.

Individuals of abnormal disposition occur among lower animals just as among human beings. For instance, the average hyena is naturally purely a bone and carrion eater—a scavenger, in fact; but now and then one may take to stock killing, and may even attack sleeping human beings. In one part of the Low-Veld two spotted hyenas, within three years, killed over a hundred native goats. In a single night they slew fifteen, concealing most of the carcasses in the long grass near by, but carrying away four to their den. This was discovered six miles away, at the side of a dry torrent bed, and under an

overhanging rock, where there were several old ant-bear holes. Outside the holes was a level space, where the animals were apparently accustomed to roll about, and to bask in the early mornings. Judging by the bones and other indications, this den must have been occupied by successive generations of hyenas, and there was a well-beaten track leading to the place. These two animals avoided traps, and for a long time refused poisoned baits, but were at last destroyed by the latter means. After they had been disposed of, the raids on stock ceased entirely, and never recurred, though there were many other hyenas in the neighbourhood.

When singled out for pursuit by cursorial carnivores, different species of game animals have each their special methods of seeking safety. The little steenbuck, like the warthog, goes to ground in any convenient ant-bear or porcupine hole. The duiker and bushbuck plunge into the densest covert they can find, and endeavour to evade pursuit by constant dodging and twisting through the undergrowth. The reedbuck makes at once for high grass or rushes, and sometimes, having struck off at right angles to his track, lies down, in the hope that his pursuers will sweep by without noticing him ; later, when certain the coast is clear, he makes off in the contrary direction. Tsessebe in the plains, and impala in the bush, both rely upon their speed, the latter choosing the thickest thorn scrub available.

Sable and roan antelope are seldom attacked by wild dogs and chitas, but when it does happen, and flight proves unavailing, their usual custom is to lie down and protect themselves by wide sweeps of their scimitar-like horns. A sable bull, bayed by domestic dogs, was seen sitting on his haunches in some shallow water as though thereby to protect his hindquarters. I have never heard of wild dogs or chitas attacking either wildebeeste or zebra. Kudu, when pursued, make their way through thick bush, often taking to water, and waterbuck always " soil." In fact the latter frequently escape in this manner, for wild dogs will not swim a river nor even venture into a bush-pool out of their depth, from fear of crocodiles. These reptiles are exceedingly quick in noticing any

disturbance in or near their haunts, even when some distance off, and at once hurry to the spot. Animals of the size of a dog are more easily pulled down than a large antelope, and so are seized by preference. If, therefore, the waterbuck can reach a good-sized stream, he stands a very fair chance of escaping even from so persistent and untiring an enemy as the African hunting dog.

Waterbuck will act in exactly the same way when chased by domestic dogs, and I have lost a great many of the latter through crocodiles, for they lack the bush cunning of *Lycaon*, and plunge into the water without hesitation. On one occasion my pack broke away and chased a waterbuck cow into a deep pool in the little Hlolo spruit. When I got to the place she was swimming about with the dogs swimming after her, and two of them were pulled down by crocodiles in front of my eyes, though the waterbuck was left alone.

Another time, while crossing the Lebombo Hills, a big waterbuck bull sprang up close in front of two of my best dogs, and made off; though always restrained from the pursuit of game, this proved too much for them; they both pursued the bull at full speed, and were soon out of sight. When, in the course of following the tracks, the natives and I came to the banks of one of the rivers, at a place where there happened to be a wide and deep pool, we found that the waterbuck had crashed through the thick brushwood on the margin, and had leaped from a bank ten feet high into deep water, which he had safely crossed. There were indications that both dogs had followed by the same way, but they had not reached the opposite bank, and I never saw either again.

From the opposite bank of the Sabi River I once had an opportunity of watching, myself unobserved, a pack of wild dogs working up to a large herd of waterbuck cows. Instead of fleeing in wild confusion and terror, as might have been expected, the main body of the latter stood in a mass facing the enemy at about forty yards distance, and snorting loudly. The wild dogs, meantime, were running to and fro, each in turn jumping into the air, the better to see over the long grass, and perhaps thus be able to select a suitable victim to cut out

from its companions. While this was going on, several cows with calves at foot were making off singly, and in all haste, from the rear of the troop to the shelter of the river reeds. Unfortunately the wild dogs became alarmed at the approach of some natives, and decamped before I could witness the conclusion of this interesting episode.

There is no doubt that were Mother Nature left undisturbed by man, she would soon strike a just balance among her children, and no species, herbivorous or carnivorous, would be permitted to increase to the detriment of others. But let the balance be ever so little upset by artificial means, and the whole delicate machine at once gets out of gear and is difficult to readjust. It should be the aim of a wild life sanctuary to preserve Nature's methods, for only where these are strictly maintained is it possible to acquire that true conception of the life histories of the animals, which is so essential to the student ; while to the general public a natural zoological gardens, showing life as it existed on our planet before man became the master, cannot fail to be attractive.

CHAPTER VII

BIRDS

Bird life by the water—Night time in the bush—Birds and farmers—Weaver birds—Various bush types—Water birds—Game birds—Protection coloration—Annual variations in numbers of ground-nesting birds—Birds of prey—Migration

As he journeys through the almost treeless High-Veld or plateau country of South Africa, the traveller feels himself oppressed by the brooding silence of Nature. From a cloudless sky the sun glares down upon a waste of yellow-brown grass, whose monotony is relieved neither by tree nor by sign of wild life. Above all he misses the cheery notes of the birds. Perhaps he then for the first time fully realizes how greatly their presence brightens a walk through any woodland country.

But in the Low-Veld all is different. True, during the hot hours of the day, Nature sleeps ; but from dawn till some hours after sunrise, and again for an hour or two before sunset, the ear is gladdened by a never-ceasing chorus of song. Though African birds cannot pour out the trills of liquid melody common to the European songsters, many of them possess charming notes, and for what they lack vocally they make amends in beauty of form and plumage.

Low-Veld bird life is best studied among the thickets which margin the streams and pools, where sitting under some shady tree, many a delightful hour may be spent. Pied-kingfishers, in black and white uniform, poise over the water with fluttering wings, their stations unweariedly resumed after each unsuccessful dive. Their cousin, the glittering malachite, less strenuous in method, perches on a branch overhanging the pool, and at intervals plunges headlong, sometimes returning with a tiny, wriggling fish in his beak, which in due course he will kill by beating it against his perch. There are little bee-eaters, gay

in green and yellow plumage, brilliant but secretive purple-crested louries, shrikes of all sizes and colours, golden-aurioles, buntings, barbets, rollers, hoopoes, starlings, robins, ground thrushes, and finches by the hundred. Little black and yellow weaver birds are busy about their nests, which, pendent from branches, overhang the water like delicately woven baskets. Here and there darts a carmine-throated bee-eater, one of the most gorgeously plumaged birds in Africa. From the heart of a neighbouring bush, a warbler repeats again and again his charming little song, " Sweet pretty Floie—sweet pretty Floie." From the woods behind, the little emerald spotted doves mingle their " coooo—cooo-coocoocoo " with the restful notes of the ring-doves, and with the cries of the bush francolins. It is these last-named which sound réveillé before sunrise each morning, for, with one or two of the shrikes, they are the earliest of all the birds to be awake. As the day goes on, comes the clatter of guinea-fowl, as they issue from the deep shade where they have spent the hot hours, and spread over their feeding grounds, ere gathering for their evening parade at the pool.

To watch the birds drinking it is well to be in position at least an hour before sundown, for about then the francolins begin to trip singly down to the water. Just as the sun is about to sink come the flocks of guinea-fowl, marching in single file like soldiers, at the last breaking their ranks, and crowding down the bank with much noise and fluster. From just before, until just after sunset, the doves arrive in pairs. They come flying swiftly, alight a few feet from the water, run to it, take two or three sips, and then immediately fly straight away. The last of them has left the water within ten minutes after sunset, and there is a well-marked pause before the first of the sand-grouse arrive. Through the deepening shadows they come with a whir of wings, and alight with a sudden swoop. More and more, in pairs, and three or four together, until the whole sandy space by the water is covered with them as by a carpet. They are in no hurry to drink. Some chase each other about at a quaint shuffling run ; others squat low in the sand. It is their hour ; the time for relaxation and social

amenity, when all meet on common ground ; and they make the most of this short play-time. As they frolic, the cock birds chirrup their little ditty of seven notes, to which the hens croon a continuous accompaniment. Presently one or two pairs of birds run swiftly down to the water and drink without hurry, eight or ten sips each at least. The others quickly follow their example, and when each pair has finished it flies straight off. By this time it is almost dark, and small objects cannot be distinguished at more than fifteen paces. As the birds depart nothing of them can be seen ; only the whir of their wings betrays them. Between the moment when the first arrivals light on the sand, until the latter is again deserted, is a space of about twenty minutes. No one who has the opportunity should miss going to watch the sand-grouse drink. It is one of the most interesting and pretty sights which can be conceived.

Just after sundown there comes a curious hush over the bush. The day birds and beasts have gone, or are just going to bed, and night life is not yet fully awake. Presently the stillness is broken by sounds foreign to the daylight hours. The night-jar is the first of the night fliers to assert his presence, and the little owl follows with the succession of piercing crescendo whistles which have given him the nickname of the " brain-fever bird," while the hoarse hoot of the great eagle-owl dominates a score of less discernible sounds. I am writing here only of the calls of night birds. Of course the bush throbs with mammalian voices, from the roar of the lion to the strident squalls of the " bush-baby."

Probably the noisiest of all the Low-Veld birds is the grey lourie or " go-away " bird, which, with his long tail jerking up and down with the effort, shouts out his warning of approaching danger to all and sundry. He is a persistent fruit-eater, and woe betide the unwatched orchard to which he devotes his attention. The bulbul or black-cap is little if at all behind the grey lourie in this respect, and consequently is not popular with the Low-Veld farmers. Finches and mouse-birds do enormous damage to the smaller grain, especially to millet, and the numbers in which the former

are sometimes present on the land must be seen to be credited. The little green parakeets, of two species, swiftly flying, and shrewd to avoid danger, also take great toll of the ripening grain. These are the only representatives of the parrot tribe present in the Low-Veld. Many of the birds found in the grain fields are there purely as the farmer's friends, intent on destroying insects, while others favour a mixed diet. Unfortunately some farmers are inclined, perhaps naturally, to condemn alike all birds which frequent cultivated ground; but it is certain that species such as, for instance, guinea-fowl, more than make up for the grain which they consume, by the very large numbers of insects which they incidentally destroy.

In any flower garden there are sure to be several beautiful little sun-birds, darting from flower to flower, and looking, in their gleaming metallic plumage, less like birds than gorgeous insects. Still smaller are the little wax-bills, closely akin to the finches, their breasts variously tinted, usually in blue or red shades. Their food consists almost entirely of grass seeds, and wherever the latter are abundant, there they may be seen in flocks. The curious nests of the masked weaver birds have already been mentioned. A much bigger cousin, the buffalo-weaver bird, lives in colonies, and builds large nests of thorny twigs, each of which is the home of several pairs of birds. They choose for safety the branches of the thorny acacias, where they feel themselves safe alike from birds of prey, and from wild cats. Each pair of birds owns its private front door to the common house. When they realize that they will not be disturbed, they favour the vicinity of human dwellings, and for many years a large colony has lived in the trees of the compound at Sabi Bridge. After having occupied the same nests for three or four years, the birds select fresh trees close by, and proceed to construct another village.

In this way the Sabi Bridge buffalo-weaver birds have, in some fifteen years, travelled all round the three acres of the compound. They are cheerful, noisy creatures, feeding on the ground in flocks, and in appearance and habits are very like starlings. They are great locust-eaters, and do much good when there is a visitation of these insects. Unfortunately the

young birds are in favour with the local natives as food. In 1925, a gang of " boys " employed in spraying locusts, was found to have cut down about a dozen trees containing the nests of buffalo-weaver birds, and had eaten all the young ones. At the time in question the parent birds were energetically helping us in our locust campaign ! The bush-babblers are known as " the seven sisters " because it is said that number is always seen together. Every now and then the wayfarer is startled by a sudden outburst of harsh chattering, which as suddenly subsides. Looking carefully, he will see a band of about half a dozen dark-coloured, thrush-like birds hopping swiftly among the branches of a thorn tree, and then, in a body, deserting it, and flying to another near by. Bush-babblers are purely insectivorous, and find their food alike on the ground and in the trees. They are nearly akin to the thrushes.

Of the shrike family, many species are found all through the Low-Veld. The most noticeable one is the long-tailed, or magpie, bush-shrike, which is a dark-plumaged bird with white on the wings and near the base of the very long tail. It is generally to be seen perched solitary on the branch of some thorn tree, whence it occasionally swoops down to catch an insect on the ground beneath. Another conspicuous and also dark-coloured bird is the fork-tailed drongo, usually observed in pairs. On special occasions, such as grass fires, it associates in considerable numbers for the purpose of hunting the scorched insects which are then to be found in plenty. Bold and pugnacious, it may often be seen pursuing and harassing some bird of prey which it thinks is approaching too near to its nest.

Almost as noisy as the babblers are the birds known as *kakelaar* or wood hoopoes. Small parties of three or four hop about among the branches of the bush trees seeking insects, and accompanying their work with a continuous harsh chatter —the name " kakelaar " is not an inapt one. We have two types of the lesser hornbill in the Low-Veld, the red-billed and the yellow-billed. With their long beaks and tails, and their slender bodies, they at once attract the attention : their flight consists of a few beats of the wings followed by a long

glide: though also insectivorous, they may often be seen picking up grain among the domestic fowls in the yard. The yellow-billed type likes to sit for hours in a tree, making a noise rather like water bubbling out of a spout. The female, when nesting, shuts herself up within a convenient hole in a tree, and lines the nest with her own feathers. Then the cock bird, having sealed up the mouth of the hole with mud, assumes the duty of bringing food to his mate while the eggs are incubating, and until the young are fledged. The ground hornbill is a very much larger bird than the two just mentioned, and associates in flocks of from ten to twenty individuals, which, as they stalk slowly and majestically through the bush, intent upon insects and small mammals, constantly betray their presence by their deep call—" hoo, hoo, hoo."

During the Southern summer European swallows fill the Low-Veld, and in addition to them, we have several species which are indigenous, or are only African migrants. The wire-tailed and the stripe-breasted swallows both breed in the Low-Veld, and while the latter migrates in winter to north of the Zambezi, the former remains with us all the year round.

Everywhere and all day in the bush goes on the busy tap-tapping of the woodpeckers, as they search for borers and other insects among the bark of the trees. Passing near the reed-fringed margin of a stream, you are sure to notice a large, long-tailed brown and white bird. This is the bush coucal, whose notes, " ku-ku, ku-ku," we have been hearing all the morning. He is a ravenous insect-eater, and, though akin to the cuckoos, is not parasitic on other birds. Of the cuckoos we have several migratory species, the commonest being the " black-and-grey cuckoo." The African cuckoos differ in no way from their European cousins in habit; but they are not the only birds which lay their eggs in the nests of those of other species. The honey-guides share the habit, and their young are provided with hooks on their mandibles with which the more easily to evict their little foster brothers and sisters from the nest at the proper time.

The Low-Veld owns a number of species of the lark family, many of them gregarious. Few soar to any great height above

the trees, nor can any of them compare as song birds with the European larks. Their relations, the pipits, are dull-coloured little birds, and are mainly insect-eaters. Of an evening at Sabi Bridge, the lesser tawny pipit is often noticed hopping about on the ground in considerable numbers. The commonest of our wagtails is the Cape, or pied, wagtail, a delightful and confiding little bird, which likes the vicinity of human dwellings, and hops about in the farm-yard among the fowls and cattle, its tail moving up and down in never-ceasing jerks. Near the rivers the grey-backed wagtail is fairly common. Several types of plovers exist throughout the Low-Veld, the most conspicuous being the crowned lapwing, known as the "screaming plover," the latter term well describing its habits. These birds associate in flocks of from eight to a dozen individuals, and when disturbed on the ground, fly for a short distance uttering their harsh screams, to settle again, more often than not, in the direct path by which one happens to be proceeding. A flock of them is usually to be found in the neighbourhood of Sabi Bridge, where they appreciate the thirty acres of completely cleared ground, and they may be heard there at intervals all through the night, as well as by day.

Although the Low-Veld is on the whole a stony and dry country, and does not contain any large reedy swamps and lakes, such as exist in Portuguese East Africa, yet there are always a number of the smaller water-frequenting birds near the permanent rivers—especially during the wet season. Rails, grebes, crakes and sandpipers are often common enough. When the bush pans have filled up after heavy rain, the last-named arrive in twos and threes until their numbers become quite imposing. The painted snipe is resident, and is always a common bird near any large watercourse. Cranes are sometimes seen singly or in pairs.

White egrets and bitterns are occasionally noticed, but the heron family is on the whole poorly represented, and the most common ibis is the dark green hadada, which in small flocks follows the course of the larger rivers on its way too and from its feeding ground, each morning and evening. Darters, or "snake birds," are common, and so are hammerkops (the little

plain-coloured birds which build so huge a nest). There are no pelicans nor flamingos, and the European storks only come when there is a visitation of locusts. The great saddle-bill stork, however, occurs pretty frequently in pairs, and I have seen them at most times of the year—though they are certainly partial migrants. One of these handsome birds came day after day, about the same time, to a pool near which, with my camera, I used to sit concealed. He would arrive soon after sunrise and remain till midday. The pool was nowhere more than six inches deep, and he spent nearly the whole time taking slow steps up and down and across it, dipping his beak at every pace. About once in every five minutes he would catch a frog or a small fish. Sometimes he was joined by a female. She would often sit down, flap her wings, and peck lightly at the male, croaking gently all the while ; but as a rule he did not take much notice of her. During my vigils at this pool I was impressed with how superior birds are to mammals in making intelligent use of their eyesight. The saddle-bills always saw me, but after the first day, having decided that I was harmless, they ceased to take any notice. Sable antelopes and other game constantly came to drink when I was there, and none of them ever had the slightest idea of my presence, though they had equal opportunities with the storks of seeing me. I have seldom seen the marabout stork in the Low-Veld, and the only time I ever noticed this bird in any numbers was during the locust plague of 1925, when a large flock were noticed picking up *voetgangers* in the neighbourhood of the Lebombo.

Geese and ducks are rare and usually are merely visitors. I think, however, that the Egyptian goose breeds in the Low-Veld, and though not numerous, one or more pairs may usually be observed during a day's ride along the banks of any of the larger rivers. The knob-billed duck sometimes comes during the summer and occurs singly or in pairs ; like the spur-wing goose, it occasionally perches upon trees. The last-named, though common enough east of the Lebombo, seldom travels to the west of those hills, except, when after heavy rain, there is a lot of water in the veld ; under such circumstances

I have known flocks of six or eight of them remain for several weeks in the neighbourhood of Sabi Bridge during the summer months. True duck and teal are not often encountered south of the Limpopo.

Generally speaking, waterfowl become more abundant in the northern portions of the Low-Veld, where the rocky and stony conditions present in the south are less apparent, and the still water, suitable to their habits, becomes more frequent. But the little reed cormorant or diver is a very common bird everywhere; he swims about in the pools with only his head and neck showing above the water, and dives on the slightest alarm.

The families which include the so-called game birds are all well represented. The crowned guinea-fowl is numerous everywhere, but the rarer crested species is found only among the wooded hills north of the Letaba River. There are three species of bush francolins, and one of bush pheasant (the red-necked *Pternistis swainsoni*); the harlequin quail and the Natal button quail; the double-banded sand-grouse; Delalande's green pigeon; the red-crested bustard or bush knorhaan; Ludwig's bustard, and the giant bustard, both the last-named rather rare birds in the Lebombo country. The dikkop or thicknee is sometimes considered a game bird and is generally found near water.

I believe that the bush francolins, should their eggs or young broods chance to be destroyed, will generally lay again, and that they are capable of breeding up to three times in the twelve months. Possibly the same may be true of the sand-grouse, which sometimes deposit their eggs in the most open and exposed places, and have for a nest merely a small depression scooped in the dust. When sitting, the hen is practically invisible, and this also applies to the night-jars, which also often make their nests in quite bare ground. So far as some birds are concerned there seems room to suspect that sympathy with their setting or background may be of protective value, at any rate from their winged enemies above, since these hunt entirely by sight.

Wild ostriches are fairly common in suitable parts of the Low-Veld. The fact of the grey-coloured hen sitting on the

WILD OSTRICHES

A WATERBUCK BULL, STANDING IN DEEP SAND
(Chapter V)
(Photo by Lt.-Col. F. C. Hoare)

eggs by day and the black-plumaged cock looking after them by night had occurred to me as being in favour of colour as a protection in their case; but I recollect the late Mr. Selous pointing out to me that the cock usually relieved the hen some time before sundown, and the hen the cock after sunrise. This weakens the value of the argument in the case of the ostrich, because it implies that the conspicuously coloured cock bird is on the nest during the most dangerous hours of the morning and evening.

Ostriches are enthusiastic dancers. At sunrise, especially on cold mornings, they like to ruffle their feathers, spread their wings, rush to and fro, gyrate and prance, until it seems to them time to assume the daily task of foraging. I kept three nearly full-grown birds at Sabi Bridge, and each morning there used to be a large audience to watch their performance. It was generally believed that they would dance longer, and with greater zest, if their movements were accompanied by music, and so each little herd-boy always came armed with some noise-producing instrument—a flute, a whistle, or a native lyre. As soon as let out of their night quarters, the ostriches would rush at full speed across the compound, each in its own direction, finishing the stampede by spinning round and round, until often one would fall from giddiness. Sometimes they waltzed singly, sometimes all together, and they would occasionally vary the performance by kicks and leaps. They refused to dance once the sun had become warm; but I have seen them do so quite late on cloudy days, especially when any local excitement, such as the arrival of strangers, occurred. Usually they spent the hot time of the day close to the kitchen of the herd-boys, who found it wise to guard carefully any cooked food. Their partiality for old rags, bones and scraps of paper was marked, but I found that when a large heap of old bones of convenient size was placed at their disposal, they treated it with contempt, and evidently preferred to do their own hunting.

There are considerable variations in the numbers of the ground-nesting birds from year to year in the Low-Veld; this is especially noticeable among the game birds, perhaps

because, from their larger size, they are more conspicuous than most of the others. In one year, for instance, guinea-fowl and francolin may be very numerous all over the country, and in the next comparatively few may be present. Lack of rain and consequent scarcity of grass no doubt renders the eggs and the young broods peculiarly liable to attacks from enemies. Possibly, too, in unusually dry seasons, the want of green herbage, or the failure of some medicinal plant to grow in sufficient quantity, may lead to an increase of internal parasites, fatal to all the weaker birds. The summer of 1913-14 was characterized by a severe drought, and the usual comparative rarity of game birds was noticed in the ensuing winter. In May, 1914, practically every guinea-fowl shot proved to be full of tapeworm, though in ordinary years it is most rare to find any of them thus affected.

In the Low-Veld the birds of prey are very well represented. Of the eagle family, the most conspicuous as well as the largest is the splendid martial hawk-eagle, with his snowy breast, and an eight-foot span across his outstretched wings. He preys on all game birds, and on mammals from the size of a steenbuck downwards; he can even kill a serval cat, or a fox terrier. Individuals of the species, which have learnt evil ways, sometimes haunt the vicinity of villages and homesteads, and often make themselves a sore trial to the poultry owner. A pair of them carried on a campaign against my fowls which lasted for several years, and became so cunning that it was impossible to get a shot at either, except at extreme range. One or other would hide in the foliage of a thick tree until an unwary fowl passed near by, when he would swoop down and carry it off long before there was any chance of getting hold of a fire-arm. Eventually first one, and then the other, was shot, and after that there was peace for about two years, until another of the same species discovered how much easier a task it was to catch domestic poultry than wild guinea-fowls.

But, like every other bird of prey in Africa of which I know anything, the martial hawk-eagle, as a species, more than compensates by the toll which it takes of snakes and rodents for any harm which some individuals may do to man. When

opportunity has offered, I have always made a point of examining the crops of large birds of prey, and it is seldom that the contents have not contained, among other things, the remains of some snake or rat. The secretary-bird has no monopoly of snake killing.

Other eagles found in the Low-Veld are the African hawk-eagle, a little smaller than his near relative just mentioned; the tawny eagle, a big, strongly built, dark-coloured bird, rather shy of man; the booted eagle; Wahlberg's eagle; the crested hawk-eagle, which, sitting on some tree bough, with his long crest upright, looks at a distance rather like a black cockatoo. The brown, and the black-chested harrier eagles are very common. Harrier eagles are serious foes only to rodents and reptiles, they are particularly keen snake killers, and only one member of the former species in my experience brought retribution upon himself by taking to fowl-stealing. The bâteleur is one of the most conspicuous birds of prey in Africa, and as he sails along, with first one wing and then the other elevated, he looks particularly graceful in his flight. A bâteleur once passed directly over my head carrying a large mamba in his talons. By nature they are more akin to the buzzards than the truly predatory types of the *Raptores*.

The loud scream of the sea, or fish, eagle is the most arresting sound in the neighbourhood of any stream, and the bird itself is one of the handsomest of all the tribe. It preys almost entirely on fish, but I have known one to stoop at a wounded duck on the surface of the water. The fish-eagle is probably the most numerous of all the larger Low-Veld birds of prey. There is something very attractive in its wild cry, and whenever I hear it I think of many delightful midday rests in the shade, by reed-fringed expanses of blue water, the while hippopotami snort, and kingfishers hover and plunge. I like to watch the bird perched in some tree, shaking his head comically from side to side with the effort of his screams.

Another very handsome bird and one of the rarest in the Low-Veld is the harrier-hawk, which finds its food mainly among frogs, small reptiles, and insects. There are several species of ordinary harriers, preying mainly on insects and lizards;

goshawks, among them the attractive chanting species ; sparrow-hawks ; falcons, including peregrines and lanners ; migrant hobbies, and kestrels. The grey buzzard-eagle (*kaupifalco*) is not unknown, and at least one species of *Buteo*. The charming little insectivorous black-shouldered kite is a permanent resident ; and the yellow-billed kite arrives in great numbers in the late spring, and remains until the following February or early March. This bird is usually harmless, but occasionally individuals learn to attack young chickens ; one afternoon I saw a single kite carry off four in succession, and I shot him just as he was returning for a fifth. At the same time there were some dozens of his own species soaring over the station, and occasionally stooping for tit-bits from the neighbourhood of the native cooking-fires, but no other of them interfered with the poultry. They are exceedingly bold birds, and sometimes dive at the contents of baskets carried on the heads of natives ; I have seen one even twitch a red cap from a " boy's " head, evidently having mistaken it for a piece of raw meat. The secretary-bird is well distributed, though nowhere common. A pair of them may be seen stalking solemnly across the veld, carefully scrutinizing every yard of ground for insects, snakes, rodents, or young birds.

The giant eagle-owl and the spotted eagle-owl, both eared species, are common. The former sometimes becomes a confirmed chicken-thief, and then, if given the opportunity, he will soon decimate the poultry yard. During some epidemic among the poultry I allowed them to roost up a tree in the compound, while the pens were being cleaned out and disinfected. A pair of eagle-owls very quickly discovered this, and until they were again shut up, one or two fowls used to be taken every night. I once found a sitting hen dead, and partially dragged through the bars of her crate ; the owl must have hooked her off the eggs by inserting his claws through the bars, then pulled her within reach of his beak. These giant owls build a large flat nest of rough branches, sometimes on the top of a flat-crowned thorn tree, and I have heard the females uttering a continuous low crooning noise while sitting. Eagle-owls prey chiefly upon rodents, snakes and other reptiles, but

also kill a good many birds, from the size of guinea-fowls downwards. The white-faced owl, which is a common species, is almost entirely a feeder on small rodents, insects and scorpions. The little Scops owl, already noticed in connexion with his piercing *crescendo* whistle, is purely insectivorous, I believe.

Though it is, of course, by night that owls chiefly make themselves heard, in the Low-Veld they are by no means always silent by day; the little owl and the giant owl especially often proclaim their presence even during the hottest hours of a summer's afternoon. The superstitions of the local natives, regarding all owls, especially concerning the large-eared types, are referred to later.

A few years ago, a gentleman who was paying his first visit to the Low-Veld since the era preceding the Anglo-Boer War, remarked to me on the absence of vultures; he pointed out that in the old days these birds used to roost in scores on the trees surrounding every white man's camp, and in the vicinity of every native village, and were always circling about low over the trees. "Now," he added, "one hardly ever sees a vulture except as a mere speck in the sky."

I answered that he was paying a high tribute to the success of faunal preservation. Formerly vultures connected the presence of all human beings, especially of white men, with plenty of meat. In those days the remains of giraffes, antelopes, and buffaloes littered the Veld, and every camp was a larder, with its long strings of drying biltong festooned to every tree in the neighbourhood. At the present day this is all altered; within the Game Reserve, the few buck that are killed for man's food are eaten to the last sinew, and the vultures must depend for their food on what is left by the lions and other carnivora. Probably, therefore, their numbers are very much less than formerly was the case; but that there are still plenty of them becomes evident whenever they can find a fairly complete dead animal. On such an occasion I have seen literally hundreds of the birds assembled, waddling clumsily and fighting round the carcass.

During the shooting season of 1920, when many hunters

were shooting the game on the Lebombo Flats south of Komati Poort, vultures assembled in immense numbers, and became so gorged that the carcasses of animals were often found untouched ; this, of course, was outside the sanctuary. The use of small-bore repeating rifles had led to five or six wounded animals escaping to die later, for every one that was secured by the hunters ; therefore, even in the old days, there had probably never been such a feast for the vultures. The distances which these birds will travel in response to the movements of their nearest neighbours in the air is astonishing. During the Anglo-Boer War, when the High-Veld was strewn with the remains of dead horses, mules and oxen, there was an appreciable decrease in the numbers of vultures in the Low-Veld. The same thing occurred during the World War, when hostilities were in progress in South-West Africa and Portuguese Nyasaland, though both these areas are many hundreds of miles distant. The commonest of the family is the Cape vulture, or aasvogel, but there are six other species present, including the big black vulture with his red wattles, and the little Egyptian vulture, though the last-named species is much less numerous than in more northern latitudes. Vultures are among the most useful birds in Africa, and share with the hyenas and jackals among mammals, the humble but necessary task of keeping the bush clear of decaying matter ; thus incidentally greatly reducing the plague of flies in summer. The *Corvidæ* are not numerous in the Low-Veld, and, I think, are only found as occasional visitors between the Sabi and Letaba Rivers. The pied crow is the commonest of the family.

It is only by living for some time in one area that it is possible to get any clear idea regarding the periods of bird migration. In summer there are a great many temporary visitors to the Low-Veld ; some of them, like the swallows, come south to escape the rigours of the European winter, others, like the yellow-billed kites, which breed with us, go north in the Southern autumn when the Low-Veld nights begin to get cold. I kept a record during several years of the arrival and departure of some of the best-known species near Sabi Bridge. It appears that the migration dates are fairly constant, but should

the season remain unusually warm, the birds may perhaps be tempted to stay a little longer. For 1909 I find the following recorded dates as the last on which I noticed individuals of certain species :

Yellow-billed kite	28th February.
Carmine-throated bee-eater	10th March.
European roller	10th March.
Swift	15th March.
European swallow	5th May.

In that year the European swallows first began to collect for departure on 9th March.

In 1925 the record was :

Yellow-billed kite	15th March.
Swift	15th March.
Carmine-throated bee-eater	20th March.
European roller	24th March.
European swallow	1st May.

In 1923 European swallows and kites were first seen getting ready to go on 1st March ; European rollers and bee-eaters on 8th March ; the last red-backed shrike (*Lanius collurio*) was seen on 28th March. All these birds are back in the Low-Veld by 1st November at latest, and some of them a month earlier. Quail are irregular migrants ; in some years they appear numerous, and in others few are to be seen. Hobbies are noticed about midsummer, especially north of the Olifants River, but do not stay long with us so far as has been noticed. The arrival of locust swarms implies that of many attendant birds, mainly belonging to species of which otherwise we see little or nothing in the Low-Veld.

Colonel Van Ryneveld, during his famous flight from Cairo to Capetown, in 1920, passed great numbers of migrating birds. He said that they were making use of air currents at great heights, floating along with extended wings and apparently with little effort. This use of the forces of nature to assist their flight no doubt serves to account for the prodigious distances which quite small birds are able to cover in a comparatively short time during their annual migrations.

CHAPTER VIII

REPTILES, FISHES, Etc.

Crocodiles — Lizards — Tortoises — Snakes—Batrachians—Fishes : Barbels, Suckers, Catfish, Eels, Tiger-fish

The Low-Veld not being fully tropical in its climate, the reptile order finds an ideal home there only during about the half of each year. The winter days, clear and sunny as they are, seldom succeed in tempting the snakes and lizards from the underground refuges which serve to protect them against the biting cold of the nights. Crocodiles, on the other hand, if less active, are certainly more in evidence in winter than in summer. When the sun has sufficiently warmed the air—usually by a couple of hours after sunrise each morning—they like to crawl out of the chilly water, and to bask or sleep all day on some rock or sandbank, where, lying often with their mouths wide open, they look like great derelict logs. If undisturbed, they will remain thus until a late hour of the afternoon, when they slide back into their native element. In summer, they are content to remain immersed in the almost tepid water, and are then all the more dangerous from being unseen, and their presence often unsuspected.

The crocodile and its habits are so well known as to demand hardly more than passing notice ; every writer on natural history has something to say about it, accurate or otherwise. Some old-time traveller wrote to the effect that " by its weeping and wailing, as of a woman in distress, it attracts Christians to the water's edge, that it may the more easily devour them." A more observant naturalist was " An English Gentleman (T. C.)," who, in 1698, published a very interesting book called " The New Atlas, or Travels and Voyages in Europe, Asia, Africa, and America, through the most renowned Parts of the

World." His quaint, and on the whole very correct, description of the crocodile is worth quoting :

This River (the Nile) abounds not so much with Fish, and there is but one good sort at Caire, called a *Variole*, but there are a vast number of Crocodiles in it, who no doubt devour the Fish ; this is an Amphibious Creature, living at pleasure in the Water or on Land ; the Head of it is flat above and below, and the Eyes of it indifferently big, and very darkish ; they have a long sharp Snout, with long sharp Teeth, and no Tongue to be perceived ; the Body large, and all of a bigness ; the Back covered with high Scales like the Heads of large Nails, of a greenish Colour, so hard that they are proof against a Halbert ; their Tails are very long, covered over with Scales, but the Belly is white and pretty tender ; it has four short Legs, with five Claws on the foremost Feet, and but four on the Hinder. It grows as long as it Lives, and some are about 20 Foot from Head to Tail. These great ones many times snap young Children at Land, and sometimes put up their Noses, and pull People out of their Boats in the River ; so that many go with Spikes to prevent them putting up their Noses ; and it is dangerous to Swim where their Haunts are. But that they Weep when they have taken their Prey, is, from what I can find, a Fable. To take these Creatures, they make a great many Pits by the River Side, and cover them with rotten Sticks, so that passing over, the Sticks give way, and they fall in ; then Men let down a Rope with a running Nooze, to muzzle their Snouts, and so they drag them up and kill them for their Skins, which they sell to Strangers for good Rates ; none but the Moors will eat of their Flesh.

Here is the same author's description of a hippopotamus :

There is also in the River a Hyppopotamuses, or Sea Horse, and is of a tawny Colour, the hinder Part like a Bouffler, though its Legs are short, yet very thick ; it has the Muzzle of an Ox, and some are about the bigness of a Camel ; its Head resembles that of a Horse, and is very great, but the Eyes are small ; the Ears little ; the Neck thick ; the Tail like an Elephant's ; in the lower Jaw it has four Teeth half a Foot long, two of them are crooked ; and as big as the Horn of an Ox in circumference.

It is possibly due to the coolness of the Low-Veld winter that the indigenous crocodiles do not attain the gigantic size sometimes attributed to those of central African lakes and streams. The largest one I ever killed, or indeed ever saw, inhabited a deep hole in the Sabi River, and measured fourteen feet three inches from the tip of the snout to the end of the tail, with a girth, immediately behind the elbows, of six feet six inches. Animals of twelve feet long, with a five-foot girth are not uncommon, but of late years, persistent shooting by white men has reduced the numbers of the larger ones very much in the Sabi, Crocodile, and Komati Rivers.

The staple food of the crocodile is fish, and, though most of the big ones in the Low-Veld rivers will seize land animals when chance offers, it is probable that only certain individuals make, as it were, a speciality of doing so. Fewer still will summon up courage to attack man. Habit rules the actions of all beasts and birds of prey: the majority seldom vary the routine of pursuing the creatures which they are accustomed to regard as their natural food, and only a few, led thereto in the beginning by accident or example, are habitually guilty of abnormal conduct. As with the lion, so with the crocodile. An individual, either because he has suffered some injury, or because, owing to increasing age and bulk, he finds his food hard to come by, is driven by hunger so far to overcome his natural repugnance as to seize some lone woman or child. "It is only the first step that counts;" afterwards his fear decreases, and gradually he may begin to haunt systematically localities where solitary human beings may most readily be surprised.

The fact that some reaches of a river have a bad name, while others are considered to be practically safe, tends to show that man-eating among crocodiles is, as with lions, an idiosyncrasy, and is not attempted by the majority. On the Manzemntondo River, for example, exists a deep pool containing many of the reptiles, of whom the natives say that they have never attempted to interfere with human beings, though formerly there were several villages close by, and men, women and children constantly bathed, fished, and drew water there. With dogs it is otherwise, and I have lost several at that place, while antelopes are constantly being pulled in and drowned. For some years my dogs were regularly taken by crocodiles on the Sabi River, above the bridge. The matter became serious, some twenty dogs having disappeared in a little over a year, and none could safely venture near the river. In 1925 I shot, near a drinking-place, two large crocodiles, and the casualties among my pack ceased thenceforth. No doubt these two crocodiles had become very expert dog-hunters, and were always on the look-out for such prey.

Like many other reptiles, crocodiles require food only at

considerable intervals of time, and, when opened, their stomachs usually contain nothing but stones and old fish scales. Allowing for their powerful digestive apparatus, did they feed as often as terrestrial carnivores, indications of a recent meal, such as bones, would certainly be in evidence far more frequently than is the case. Stones are swallowed to aid digestion; and I have counted twenty-six pebbles, each of half an inch in diameter, in the stomach of a twelve-foot crocodile. The Low-Veld natives say that they swallow one stone annually, and therefore that each represents a year of life! From the stomach of another were taken the remains of a water-tortoise, mixed with a lot of green water-weed. The shell of the tortoise had become broken up into its component plates, which were all in process of being digested. The gall bladder is considered to possess much merit as a remedy for rheumatism, and is in great demand by the native doctors; indeed, so highly is it valued, that a doctor will pay as much as £2 to anybody bringing one to him.

The big monitor water-lizard (*Varanus niloticus*) sometimes grows to a length of nearly seven feet, which includes the long tail, and when it rushes through the reeds, and springs into the water with a resounding splash, it is often pardonably mistaken for a young crocodile. As a matter of fact, it is a deadly foe to the larger reptile, for it eagerly seeks out and consumes any unguarded eggs of the latter, which are always buried in the sand that they may be hatched by the sun's heat. *Varanus niloticus* is a true water-dweller, always seeking refuge in that element when disturbed.

Varanus albigularis, first cousin of the above, is, on the contrary, purely a forest-dweller, and is found often many miles from the nearest water. It looks to trees or holes for refuge when in danger, is an expert climber, and an inveterate hunter of birds' eggs in the proper season. These big forest lizards are capable of growing to a length of five or even six feet, but are seldom permitted to reach the limit of their size—they have too many enemies. I have only once come across a really big one. Riding through the bush one day, I noticed a creature slowly shambling and shuffling through the grass.

I dismounted, and going up to it, found it to be one of these monitors. It was fairly bulky, over five feet long, and, either owing to age, obesity, or some injury which I did not discover, seemed quite unable to move faster than I could walk.

Both the above species of lizards are, in common with the rest of their tribe in Africa, perfectly harmless to man ; nevertheless native tradition is firm regarding the risk attached to handling, or approaching them too closely. It is true that they have a disconcerting way of darting their forked tongues, dripping with saliva, in and out of their jaws, when on the defensive, the while they hiss loudly and threatingly ; but it is only " bluff." Bantu villagers are curious people. On most points connected with bush lore, and with wild animals generally, they are perfect living encyclopædias. Then, suddenly, the inquirer is faced with a piece of amazing and inexplicable ignorance concerning some creature which they have constantly under their eyes. For example, the lethargic and innocent chameleon is regarded as being highly venomous, and I have often been amused at the scared looks on the faces of my attendants when I have taken one in my hands.

As for the smaller species of lizards found in the Low-Veld, their name is legion, and they are constantly at work helping man by their energetic war upon flies and other noxious insects. In the summer they are everywhere in evidence ; on the posts of verandas, on the walls of outhouses, darting along the roof-poles of thatched houses, on the trunks and branches of trees, among the almost red-hot rocks and stones of sun-baked kopjes. A sudden rustle close at hand causes suspicion of a snake's presence, but it is nearly always a lizard that emerges. The smaller species, especially, are very tame, and some of them most pugnacious, the males fighting desperately, quite regardless of a human audience. When the issue has been decided, the victor pursues the vanquished with determination and fury, and, when he happens to lose sight of him, round the corner of a shelf for instance, he will stand with head raised, glaring round like a lion. I have often thought how fortunate it is that these active, hungry, and bold

little creatures no longer attain to the size of their Mesozoic ancestors.

In the Low-Veld are present types of both tropical and purely South African families. The little house lizard (*Mabuia striata*) is probably the most familiar to the resident. It is an amiable little fly expert, and it is always a good deed done to save it from the domestic cat. Another common type is the blue-tailed *Mabuia quinquetalnieta*, which, with *Mabuia varia*, is perhaps most frequently encountered among rocky outcrops. The rough-scaled and head-shielded members of the *Zonuridæ* family are also very common. Some of the species of smaller lizards grow to as much as ten inches or even a foot long ; but the bigger ones seem much shyer than their smaller cousins, and usually make off while still at some distance, or place the trunk of a tree between themselves and fancied danger, while they are seldom found about the habitations of man.

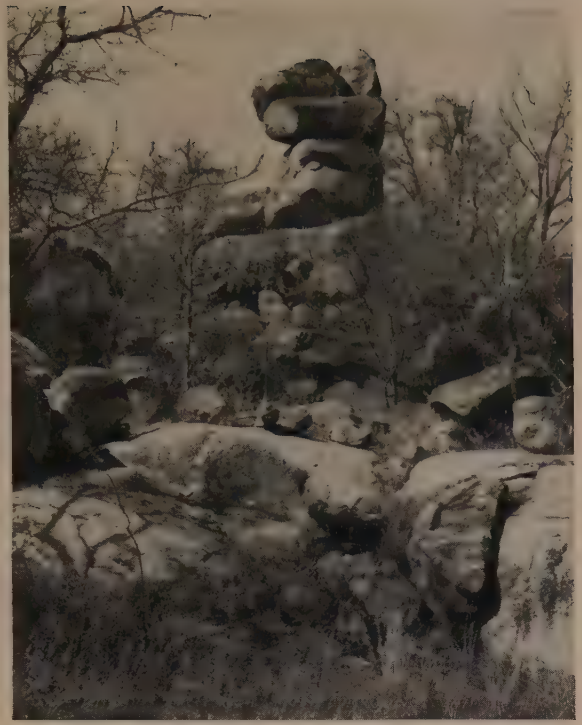
One morning I was startled by a commotion in the roof of my office. Looking up, I saw a lizard about six inches long being chased by a back-fanged grass snake. The latter had got his quarry apparently cornered, and as he struck, the lizard fell like a stone behind a book-case. After the snake hunt had been successfully concluded, I searched for the lizard, but could not find it, and about half an hour later saw it running up a window frame apparently uninjured. Just as the snake struck, it must have purposely let itself fall, and I have noticed the same means of escape sought by the vanquished in an overhead duel between two lizards. It would be interesting to know whether the huge reptiles which ruled the earth during the Secondary Period were ever striped, spotted, or marked with the brilliant colours which sometimes distinguish their tiny representatives to-day.

The Low-Veld possesses both a land and a water tortoise. On a hot day, many little snake-like heads may be seen breaking the surface of any still pool, as the tortoises, floating with extended legs, raise their noses to breathe. They seem to live comfortably enough in the same pools with crocodiles, albeit the latter certainly devour them upon occasion. The natives

do not consider them worthy of the pot, and they are therefore luckier than their land cousins, which are considered to be quite palatable. When alarmed, the latter tortoise, of course, draws back its head and legs within the protection of its shell; the passing native thereupon picks it up, bores a couple of holes in the opposing shields, and ties them together, thus rendering the creature helpless. Upon reaching home, he just tosses it into a corner until required, in the certainty that it cannot escape. One of the minor local tragedies is the fate that often befalls an unlucky tortoise which happens to cross the railway line. On the outside of the track, the rails are nearly flush with the ground, and so the tortoise easily crosses and makes his way towards the other rail. On reaching it, however, he finds himself confronted by what is to him an unscalable precipice. After repeated and unavailing efforts to climb out—for he never seems able to get his hind legs to the top of the rail—he gives it up and plods along the middle of the permanent way, here and there repeating his fruitless efforts to escape from the trap. Sometimes, by a stroke of luck, he succeeds; for, in places, an inequality of the ground, or a stray piece of ballast, may aid him; but very often he just wanders on until he dies of starvation, or, in his exposed situation, falls victim to some natural enemy.

In summer, the Low-Veld, especially the thickly-bushed country near the watercourses, is one of the most snake-infested countries in Africa. Mambas, spitting cobras, puff and night adders are liable to be lurking in any patch of long grass, thicket, or pile of rocks. When the grass is long, it is dangerous to walk through it without carefully picking the steps. Fortunately most snakes get out of a man's way, and can hear him coming while he is still some distance off; but the puff adder is a lethargic brute, and does not like to move until actually pushed up; while, if accidentally trodden upon, it not only strikes swiftly and fiercely, but holds on like a bull-dog.

Snakes are not the least of the unpleasantnesses connected with camping out during the wet season. It is disagreeable to find scorpions or centipedes under the pillow, but still more so to discover a puff adder coiled up among the blankets.



ONE OF NATURE'S FREAKS

A baboon may be noticed sitting on top of this kopje

(CHAPTER I)

NEST OF THE HAMMERKOP

The bird that builds this huge nest is about the size of a crow, and belongs to the heron family

A mosquito net, in addition to its value against winged torments, is an excellent safeguard for keeping such unwelcome visitors at bay. One morning in camp, a native policeman, on getting up, found that during the night a puff adder had crawled underneath the grass mat on which he had been lying, no doubt appreciative of the warmth of his body. Again, it is disconcerting to find a mamba inside the tent, or a spitting cobra coiled up under the bed. On Christmas Eve, 1925, I happened to be travelling, and spent the night at a rest camp. It was bright moonlight, and very hot, so after dinner I sat on the ground outside the open door of my sleeping-hut. Presently I felt something against my leg, and glancing down, I saw a large black-necked cobra crawling along past my right thigh. It was a most unpleasant moment: the best course to pursue was to remain perfectly still, which I managed to do, and the snake, proceeding undisturbed, passed along into the interior of the hut. Had it decided to coil itself up against me and go to sleep in that position the situation would have required desperate thought, since one could hardly have gone on sitting perfectly motionless until it pleased the intruder to go away!

Snakes are most frequently abroad in search of prey during moonlit nights. They do not seem to like moving about in the dark, and by day they generally lie up in the shade, or in their holes. Fowl-houses must be protected by small wire mesh against cobras; the local type, known as *mfezi* is very fond of young chickens, and if one succeeds in effecting an entrance, it is sure to kill several of the fowls, whether it finds any chicks or not.

But it is the mamba that is the real danger to anyone walking among rocks, or through thick bush and grass. The creature is so amazingly swift and direct in its movements, that it is most difficult to avoid, and in its anxiety to escape it will strike at any living thing that appears to bar its progress. The bite is so deadly that only the promptest attention with the correct remedies can avert certain and speedy death. The orthodox treatment at present, in case of any snake-bite, is permanganate of potash, as a first aid, well rubbed into the previously scarified

punctures, while a ligature is applied to the limb concerned. It is, however, only a palliative. At the earliest possible moment specially made snake serum, which is sold in small glass phials containing about an ounce of the liquid, must be injected by means of a hypodermic syringe, which, with its needle, must of course first be thoroughly boiled. This is a proved and tested cure, but it takes time to administer. The materials are unlikely to be carried habitually on the person, and unless this is done, they may not be available in time. The effects of a mamba bite are so rapid that ere home or camp can be reached it may be too late. No doubt some method of condensing the fluid, and of rendering it at once more portable and more durable will be ultimately evolved.

The natives declare that they possess a remedy, which, if applied at once, is perfectly efficacious in the case of all colubrine poison, including the bite of a mamba. Undoubtedly it is an extremely uncommon thing for a Low-Veld native to die of snake-bite—in fact I can hardly recall an instance in the last twenty-six years—though they not infrequently get bitten, and wild, as well as domestic animals often fall victims. There is a small deciduous tree or bush, called inkwakwamuti, which is common in the Lebombo country. The root is taken, ground up into the finest powder possible, and spread out to dry ; when quite dry, it is said to be mixed with the dried and powdered spleen of a mamba, the most deadly of the colubrines, and when the mixture has been again well dried, the powder is put into a small box or tin, which is carefully sealed ; most natives always carry this cure about with them. Immediately on having been bitten by a mamba or cobra, a ligature is applied in the ordinary manner, and then, the punctures having been scarified, a little of the powder is rubbed into the wounds, and a slightly larger quantity given to the patient to drink in tepid water. It is really anti-toxin treatment, for the blood and gall of all poisonous snakes contain toxic qualities,[1] which explains the immunity they enjoy from each other's bites. A few minutes after having been given the drink, the patient begins to vomit

[1] Dr. A. Calmette, "Venoms."

violently, and then sleeps for seven or eight hours; the following day he is perfectly well. The ba-Hlengwe, living in the north, are said to possess the best kind of snake medicine.

Now I am perfectly well aware that every native cure submitted to scientific test is said hitherto to have proved entirely valueless when tried on monkeys, dogs, fowls, and other animals. On the other hand, natives are so jealous of their secrets that I much doubt whether they would either give the real medicine to any white man, or correctly explain the exact procedure of application, did they suspect that he wished to adopt the cure for general European use. Whatever the truth, science moves so fast nowadays that often what is apparently proved to-day is disproved to-morrow, and vice versa. In the meantime, though I would never recommend a European to use a native snake-bite cure when the proven remedy happens to be available, I think we would do well to recollect that native doctors, in spite of the contempt, often born of ignorance and racial prejudice, with which they are regarded by the average white man, are by no means fools, and that it would be an astonishing thing if in thousands of years they had not evolved some efficient remedy against one of the most present and serious dangers to which they and their clients are exposed. The native cure is handy to carry, easy to administer, and, so far as it is possible to judge, effective. On the other hand, not having been prepared by scientific standards, it no doubt varies in strength, for it is admitted that some doctors produce better material than others.

Having read most of the literature on the subject of snake-bites, their effect and cure, I did not for a moment believe that a mamba bite of a serious nature could really be rendered non-fatal except by the rather cumbrous and slow scientific process of fresh serum and syringe, which are about the last things ordinary South African hunters and prospectors are likely to carry about with them in the veld. Well, *experto crede!* One morning recently my native sergeant of police came to the office carrying a dead mamba, just over seven feet long. While I was measuring it, he casually remarked that it had just bitten his son, a boy of about eight years old. He

seemed surprised at the alarm I displayed, and remarked: 'Oh, no! he won't die; we had the medicine handy, and gave it to him at once." It appeared that while the cattle were being dipped, a mamba was discovered on the grass roof of the tank shed. With the marvellous agility characteristic of its tribe, it slid swiftly to the ground, and charged through the surrounding crowd of natives, scattering them in all directions. The small boy could not get out of the way in time, and the mamba struck him fairly on the outside of his naked thigh. It then attacked a full-grown native, who managed to disable it with his stick, and it was then quickly killed. I immediately went to examine the child, and found two deep fang-marks on the outside of his left thigh, about half way between the knee and the hip. An excellent ligature had been applied, and the wounds treated as described above. The boy had been sick, and was already asleep when I saw him. This was about 11 a.m. At 6.30 p.m. his eyes were open, but little except the whites showing, and he was in a semi-comatose condition. No one seemed to have the least anxiety about him, and, in fact, except for a swollen thigh, partly no doubt due to the ligature, next morning he showed no signs of what he had been through. On the following day he was perfectly well, and walked home to his village, five miles distant. Two of my police afterwards admitted that each of them, and the wife of a third, had been bitten by mambas, but having the medicine at hand, they had suffered no ill effects. Conversely, some years ago, a woman who was bitten in the finger while she was working in the lands, and could not be treated for about an hour, died. It is agreed that the remedy must be applied, in the case of a mamba bite, within about five, or at the most ten, minutes after the injury has occurred.

The native treatment for viperine bites is to put on a ligature, open up the wounds thoroughly with a knife, wash them out with nearly boiling mealie bran, and then put on successive very hot poultices made of the same material. This last remedy I have never seen in action, and it may or may not be effective, as the natives declare it is, in drawing out the poison.

It is important at least to note that they do realize the difference between colubrine and viperine poisons, and are perfectly contented with the results of their remedies. We might also remember that, until quite lately, we ourselves were accustomed to treat the bites of all families of snakes alike with ammonia and alcohol, both perfectly useless, and the latter, when given in the quantities usually considered necessary, actually dangerous.

It is probably the peculiar and specialized activity of the mongoose which enables him to overcome most poisonous snakes with impunity, and it may be that his instinct teaches him, after having been bitten, to seek some natural antidote of which we are at present unaware. It is possible, too, that his blood may contain partially resistant elements. Next to the larger birds of prey, the mongoose is the most dangerous enemy that faces the snake tribe. Cats are expert snake-killers when they have had a little practice, but a mamba which for a time haunted the vicinity of my house, disposed of both mine within a week of his appearance.

Dogs fall frequent victims, especially when they are young and hot-headed. A native was taking two of my pack home from camp. One was a young fox terrier, the other an old, plucky, and very experienced cross-bred. A big mamba got up from the grass in front, and dashed away along the path. The young dog at once gave chase, and catching hold of the snake, was promptly bitten by it. Upon this the old dog, who should have known better, rushed in to help. The mamba struck him in the shoulder, and holding on, was dragged along by the dog as he fled back towards the native attendant. Confronted with the latter, the snake let go of the dog, and at once reared up to do battle with the man, who, expert in stick-play, like most Low-Veld natives, was able to break its neck as it came. The first dog died in a few minutes, the second within an hour or so.

The following are the principal among the poisonous snakes which occur in the Low-Veld:

The mamba (*Dendraspis angusticeps var.*); the Egyptian cobra (*Naia haie*), which is not usually found except in the

more northerly areas; the black-necked or spitting cobra (*Naia nigricollis*), an exceedingly common snake; the puff adder (*Bitis arietans*); the snouted night adder (*Causus defillipi*); the demon night adder (*Causus rhombeatus*). These are the really dangerous snakes. The coral snake (*Aspidelaps lubricus*), the shield snake (*Aspidelaps scutatus*), and the garter snake (*Elapechis decosteri*), though all of them of the front-fanged type, do not usually inflict fatal bites.

The back-fanged snakes are those which carry the poison fangs so far back in the upper jaw that they cannot bite effectively without having first got a full grip of their object. There are a great many of these species, and among them may be noted the tiger snake (*Tarbophis semiannulatus*), which is often discovered living among a colony of weaver birds at nesting time, presumably preying mainly on their young; the herald or red-lipped snake (*Leptodira hotambœia*), about two feet long, often found in outhouses, on the hunt for rats and mice; a very slender and swiftly-moving grass-snake (*Psammophis furcatus*), easily recognized by its longitudinal yellow streaks; the bird snake (*Thelotornis kirtlandii*); the white-lipped snake (*Amblyodipsas micropthalma*); and the tree snake (*Dispholidus typus*), better known in South Africa as the "boomslang."

The harmless solid-toothed snakes greatly exceed the poisonous kinds in numbers both of species and of individuals; but the natives persist in classing all as equally venomous with their fanged relatives; indeed, the perfectly harmless file-snake (*Simocephalus nyassæ*) is usually regarded as hardly less dangerous than the mamba itself. The egg-eating snake (*Dasypeltis scabra*) has only rudimentary teeth in its jaws, and to break an egg, which it always swallows whole, possesses a tooth-like mechanism in the back of the gullet, which is also of assistance in ejecting the broken shell. Other types of non-poisonous snakes are *Typhlops schlegeli*, which is a blind, burrowing creature, the head hardly distinguishable from the tail; the yellow-lipped snake (*Lamprophis fuscus*); the brown house snake (*Boodon lineatus*); the wolf snake (*Lycephidium semiannulis*); the mole snake (*Pseudaspis cana*); the bush snake (*Philothamnus semivariegatus*); the black-headed copper

snake (*Prosymna jani*); the variegated snake (*Homalosa variegatum*); the olive water snake (*Ablabophis rufulus*). From this incomplete list it may be realized what a number of non-poisonous species exist, but of course they are almost universally regarded and treated as "just snakes!"

Pythons are fairly numerous. They are easily caught alive, either when surprised above ground, or by digging them out of their holes; it is only necessary to hold a sack open in front of the animal, and it will immediately seek the friendly darkness within. Accounts occasionally appear in the Press relating in thrilling detail struggles between these big snakes and men or boys whom they are said to have seized in their constricting folds. All I can say, for my part, is that in a fairly long experience I have never come across anything of the kind, and never heard of a Low-Veld native having been attacked by a python. A duiker seems to be about the largest creature they are accustomed to catch. I have handled a good many at various times, and am sceptical about their being—at any rate in the Low-Veld—ever aggressive towards human beings. Their attitude towards the latter resembles that of other wild creatures.

The African wilds are not nearly so dangerous, nor so exciting to live in, as breathless newspaper paragraphs would sometimes have us believe. Plenty of people whose business or pleasure takes them temporarily away from civilized surroundings like to make the most, even to themselves, of such experiences as may have come their way, and the friendly and comforting environment of the hotel or club bar is responsible in South Africa for much that subsequently creeps into print. Thus wrong ideas achieve currency, and are accepted as being the truth.

During a period of leave from South Africa I was once given temporary charge of the Khartum Zoological Gardens. It was rather an amusing experience, for many of the cages and enclosures were of such ancient origin, and money was so scarce for repairs, that the animals were constantly escaping, and roaming into and through the palatial gardens which surround the bungalows of most of the European residents.

Foxes, jackals, and mongooses were always slipping away, but the escape of the python one night was an event which spread terror all around. Ladies would hardly venture into their own gardens, and, during the three days of his absence, my " name was mud." Eventually he was found coiled up under an orange tree comfortably asleep, and, with the help of an attendant and a sack, was safely secured and returned to captivity, much to the relief of all and sundry. Nevertheless, the mere fact of his presence, with its attendant possibility of further escape, were so disturbing to the neighbours that I took him down with me to the Cairo Zoological Gardens when I left, and on the river steamer found that natives, who had the duty of handling the box containing him, regarded themselves in the light of heroes.

In wet weather, snakes inoffensive and otherwise, are constantly found in the vicinity of human dwelling-places. They are following the frogs, which, after rain, spread far afield, and appear inside houses, and in all sorts of other unexpected places, coming suddenly and seemingly from nowhere in particular. Near rivers and swampy pools their croaking dominates every other sound. In " The Frogs " the old Greek writer Aristophanes admirably reproduces the refrain of their chorus, though I am sure he never had such opportunities of hearing it in full-blooded strength as are accorded by night, and in dull, damp weather by day also, to dwellers in the Low-Veld. The chorus rises and falls with monotonous regularity, and sometimes, when the camp is close by a piece of swamp, is so deafening that it is almost impossible to carry on a conversation. Even in the driest weather frogs are active in the neighbourhood of reed-fringed pools and morasses, and their croaking is often then a very welcome sound.

The little tree frogs make their presence known by night, and sometimes even by day, nearly all the year round.

Frogs and toads often take up their winter quarters in the nests of termites. The galleries of these places are always slightly damp, and are, therefore, very suitable shelters when the earth above is all parched and burnt up. Dr. Gill, of the South African Museum, while on a week's visit to the Low-

Veld in the winter of 1927, found, during a very limited exploration of a single white ants' abode, four little toads, which he identified as *Breviceps mossambicus*. He was also successful in discovering at least one new species of snail from among the empty shells which everywhere strew the bush. Winter visitors have often asked me what these shells are, as they never seem to have any living connexion. They merely represent past generations of various species of large land snails, which, as soon as the rains have come in full force, may be seen everywhere in great numbers. Some of these creatures are quite six inches long.

Like those of other tropical and semi-tropical countries, the rivers and pools of the Low-Veld are well stocked with fish ; indeed, the numbers of species present, even more than the number of individuals composing them, is remarkable. The angler usually encounters only those types which most readily take his bait, and so a great many remain unknown to him. Some years ago I undertook to collect fish for the South African Museum, and only then did I begin to learn something of what the rivers actually contain. The inspection of a catch made by native women, after they had worked through a shallow pool with their baskets, was often a revelation to me. Increase and mortality are alike on a more generous scale than is the case in temperate zones.

Among the enemies of fishes in their adult stage are fish-eagles, otters, crocodiles, and the predatory types of their own order. Fresh-water crabs, and various kinds of fish eat the spawn. The young fry are preyed on by a host of enemies, including kingfishers, young crocodiles, monitor lizards, water mongooses (which sometimes also catch quite large fish), and, of course, all large carnivorous fish even of their own species. After a few degrees of frost at night numbers of the more tropical types, such as tiger-fish, may be seen belly up on the surface, or washed by the current on to the banks. As a rule they are only comatose, and will revive if placed in warm water, but a very large number, nevertheless, die thus, or are picked up by birds and beasts of prey. Again, after intensely hot weather, I have seen the fish of isolated pools dead in

hundreds. When the water is only a few inches deep, and exposed to the merciless rays of the October sun just before the rains, it becomes too hot and stagnant for the health of all but the true mud-fishes, and the surface types, not already dead, are seen gasping away their lives, their noses often protruding from the shallow water.

Some of the bottom feeders find a secure winter refuge immersed in the mud which forms the groundwork of the pools. Even when the latter are quite dry, and the surface of the mud caked and hard, it is possible to secure, by digging, numbers of perfectly healthy specimens, usually of the cat-fish tribe, commonly known as barbers. These must not be confused with the barbels, which are in the main surface feeders, and are probably the most common of all the Low-Veld fishes. Like their relatives in other parts of the world, they possess little barbs under the lower jaw. They are bright-hued creatures of active habits, and prefer the swifter running and not too deep parts of the rivers. The smaller species and the fry of the larger are frequently left landlocked in the pools of tributary streams after the autumn floods have subsided, and then occur in immense numbers in such places. Eleven species are described from Low-Veld rivers :

Barbus nasutus, which sometimes attains a length of nearly eighteen inches, is a large-scaled fish, bluish above, and flesh-coloured underneath.

B. sabiensis, nearly as large as the above, is reddish-brown above, while the underparts are silvery.

B. trimaculatus is seldom more than three inches long, generally brownish in colour, but subject to variations in marking.

B. paludinosus, *B. hamiltoni*, *B. kerstenii*, *B. viviparus*, *B. unitæniatus* are all small fish, varying from two to four inches in length.

B. elephantis is about a foot long, and dark silver in colour.

B. cookei, with greenish scales, is about the same size as the last.

B. brucii, a rather dark brown fish, about six inches long, appears to occur mainly in the more southerly rivers.

Another carp-like genus is *Alestes*, of which one species —*imberi*—is very numerous in the Sabi River. It runs to seven or eight inches in length, and possesses large silvery-brown or yellow scales. It rises freely to the fly, and is the fish usually secured by anglers in the Sabi and adjacent rivers.

Very interesting fish are the suckers (*Labeo*), of which four species have been described. They are usually seen attached by their mouths or noses to rocks and stones, and seem to feed on lichens and other vegetable substances. One species—*L. rubropunctatus*—which is bronze-green above, and nearly white beneath, clings to rocks at the side of deep and rather swift streams. So far as I know, it will take no bait. It is a heavy fish, and attains a length sometimes of eighteen inches. I have secured many specimens with the rifle, and found them excellent eating. Of rather lesser size, and similar habits, is *L. cylindricus*, found with the last-named. It has a very prominent snout, with a slightly turned-up sucking appendage at the end. The natives call this fish *ntita*.

A beautiful little fish—*Micralestes*—bright silvery in colour, with a dark lateral band, and seldom exceeding an inch and a half in length, swarms in all backwaters and small pools. I believe it to be a great asset in the destruction of mosquito larvæ.

I have already mentioned the barbers. There are two species present—*Clarias mossambicus* and *Clarias gariepinus*—the latter is the more common, and the larger, sometimes attaining a length of quite four feet, of which one-fourth at least is taken up by the huge flat head. The first-named species is distinguished by being mottled on back and sides, and is of slightly more slender build than the other. Both possess long feelers or barbels attached to the jaws, which are responsible for the name cat-fish bestowed on the family. They have very small eyes, no scales, and the skin is as slippery as that of an eel. Barbers are on their way, apparently, to become amphibious animals, for they can live for long periods out of the water, and their huge bony heads render them very difficult to kill in the ordinary manner. It often happens,

indeed, that after having been hooked, landed, apparently killed, and placed on the bank, they will contrive to wriggle back into the water, sometimes from quite considerable distances. They are largely scavengers, and I think live very much like eels.

The latter are represented by three species (*Anguilla mosambica*, *A. bengalensis* and *A. australis*) which occur throughout in suitable places and often attain a length of over three feet. The general native name is *mokane*.

By far the finest fish in the Low-Veld, if not in all Africa, whether in grace of form, courage, or vigour, is the tiger-fish (*Hydrocyon lineatus*). His colouring is in keeping with his character. The silvery scales, shining bright as those of a salmon, form on the sides jet black longitudinal stripes, which run the whole length of the body. The fins and tail are clear orange red. The mouth is armed with conical teeth, each set well apart from its neighbour, and fitting into a socket in the opposing jaw. In large specimens these teeth are fully a quarter of an inch long. The fish's movements are all swift and easy, and his innate impetuosity is well displayed by the manner in which he approaches a bait. Either he dashes at it furiously, or he leaves it alone. He is no creature of half measures when he is in full health and strength. By habit he is entirely predatory, and fishes which have escaped from his teeth may be seen with pieces bitten clean out of their bodies, as though by an otter. Yet, in moments of ease, this monarch of the streams may be seen lying in some clear pool among hosts of fishes of other species, unregarded and unregarding. Although these others are careful to keep out of his way should he happen to move, they seem fully to realize that, for the moment, he is, as it were, off duty. I have now and then noticed the same curious understanding between game and the larger carnivora.[1] The usual feeding time of tiger-fish is during the two or three hours following sunrise, and again for a couple of hours before sunset. They are essentially creatures of warm waters. In the winter they are almost dormant, and always then in very low condition.

[1] "Animal Life in Africa."

About the beginning of August they begin to become active, and remain at their best at least up to the end of the year. I believe the spawning season to be about January. Specimens of 14 lb. have been caught, but, as a rule, 8 lb. or 9 lb., with a length of about fifteen inches, is about the limit to which they attain in Low-Veld rivers. Although, unlike some fish, they will not mouth and play with a bait for a long time before swallowing it, when they are out of condition, in the early spring for example, or are not hungry, an individual will sometimes follow and smell a spoon-bait, and, if there is a fish scale, or a small piece of raw meat on the tail hook, he may make a dash at it, either in earnest or in play. Tiger-fish are never scavengers nor bottom feeders, but seek their prey among other fish, insects and any living thing, in fact, which they can overpower. I have seen large ones rising at swallows, as the latter skimmed the surface of a deep pool. Probably the best locality in the Low-Veld for these fine fish is near the junction of the Letaba and Olifants Rivers, where broken water, running into deep, silent pools, with under-water rock cavities, where they may lie in ambush, forms an ideal hunting ground. Here, at any rate, they are to be found in greater numbers, and of larger size than in any other Low-Veld water with which I am acquainted.

A rather interesting event, during the period of my collection of Low-Veld fishes for museum purposes, was the discovery of a salt-water fish in the Sabi River. I was shooting at suckers from the railway bridge one day, when I noticed, in the clear water below me, a fish which I did not recognize. I managed to secure it, and it was subsequently identified as a species of *Gobius*, which is a sea fish. Now, Sabi Bridge is, by river, some two hundred miles from the sea, and this fish must have worked its way up all that distance.

In seasons of scarcity the swarming fishes of the rivers and pools are a godsend to the natives, and, whatever may be the future fate of the wild mammals of the country, it will be a long time before human ingenuity can succeed in exterminating the fishes or even in seriously affecting their numbers.

CHAPTER IX

INSECTS AND OTHERS

Insects generally — Ants — Termites — Bees — Wasps — Flies — Moths — "Army worm" — Grasshoppers — Beetles — Borers — Ant-lions — Insect mimics — Praying mantis — Ticks—Spiders—Tarantulas—Scorpions

In common with other tropical and semi-tropical countries, the Low-Veld possesses its full share of insect life. During the rainless winter, when the earth is baked hard as brick, blackened by grass fires, and the trees stand bare and gaunt, the insect, like the floral world, is dormant; but with the first breath of spring, as the leaves burst out, and the grass shoots up, it, too, once more awakes, and from sunrise to sunset the air throbs with its pulsing life. From freshly opened craters pour forth the winged breeding ants and termites; the workers of the latter once more set themselves to fashion tunnel and covered way; swarms of bees noisily seek new quarters; the cicadas chirp in the trees, everything that flies and creeps issues from winter lair and sets to the great task of reproduction. Summer, the insect paradise, is at hand.

Man can successfully sweep all other creatures of the earth from his conquering path; but in Africa it is doubtful if he more than just holds his own against the insects; indeed often the battle seems rather to go against than for him, and perhaps by himself unassisted, he would fail in the struggle. Insects are omnivorous, and nothing whatever, except metal and stone, is proof against the ravages of one or more of their many thousand types. The Low-Veld farmer knows to his cost the power of these enemies, so contemptible individually, so terribly formidable in the mass of their countless myriads. It is probable that the losses directly and indirectly sustained

by agriculture from insects exceed that from all other causes—drought, hail, disease, birds and mammals—put together.

Nor is it only agriculture that suffers. Every article that man values, books, pictures, clothes, furniture, food, the very wood of which his house is built, must be constantly guarded against the insidious attacks of some insect foe. Certain of them are responsible for carrying the diseases which destroy live-stock, others for those which attack man himself.

Were more than quite an insignificant proportion of the insects which are born permitted to reach maturity, a large proportion of the earth would become uninhabitable by man. Fortunately for him he has valuable allies in this war, and what he himself does in reducing the swarming insect life is but a fraction of the work they perform. His lack of care, and neglect of cleanliness in his surroundings, often does a great deal actually to assist his insect foes by providing them with ideal breeding grounds, and in his folly he kills, for gain, in ignorance, sometimes from the lust of sheer wanton destruction, those birds and other creatures which are the insects' bitterest foes.

After birds, as man's assistants, come lizards, frogs, toads, chameleons, scorpions, spiders, certain mammals such as the ant-bear, mongooses, baboons, shrews, moles and others, and man tries to destroy most of them whenever he can. There are also allies in the insect camp itself, among them the mantis, hunting-wasps, the ant-lions, ichneumon-flies, ants, dragon-flies and lady-birds, all of them busy reducing man's enemies. And yet, though most insects are, in some form or another, inimical to man, so very little is really known of the inner workings of Nature's laws, that the entire elimination of some noxious scourge might, for all we know, stimulate some other pest, which it had previously kept in check.

Among insects, the ants of course easily take pride of place. Their economic laws, their discipline, their intelligence, strength, and endurance, are all so amazing, that man may indeed be thankful that their bodies are not constructed on the same scale as his own: were it so, his career on earth might well have proved less triumphant. An ant of the size

of a human being would ordinarily move at the rate of about twenty miles an hour, could lift a bullock, and bite off an elephant's leg with one snap of its jaws. Let us be thankful that so formidable a creature is so limited in size!

There are many families of these intensely interesting creatures indigenous to the Low-Veld. They vary in size from giants, three quarters of an inch in length, to pigmies not much larger than fleas, and these last render the bee-keeper's life one of constant anxiety. Every hive must be raised off the ground, supported on legs whose ends must stand in tins of water or paraffin; otherwise the little ants will attack the grubs so persistently that the bees will abandon the hive. It is a mystery how the wild bees protect themselves against these tiny enemies, and their existence cannot always be one of placid routine. Food left unprotected overnight, especially in camp, is found in the morning to be a moving mass of little ants; they commit suicide by the thousand in opened tins of jam and milk, and they often swarm inside the lining of a hat, and among the cartridges, if the latter happen to have been greased. They, too, are mainly responsible for the difficulties besetting the collector of small mammals. Early as he may rise in the morning to inspect his traps, in half of them he will find the precious specimens minus ears and noses and covered with minute scurrying creatures. Many ants both sting and bite, and the formic acid which is then injected causes painful irritation. The light brown tree-ant inflicts a peculiarly painful sting, and has an unpleasant habit of falling from the branches on to the back of the human neck. Though most of the Low-Veld ants live underground, there are some species which prefer holes in trees, and others even make their homes temporarily in empty seed pods still adhering to the branches. Much has been written regarding the farming of aphids by ants, and some authorities believe that they deliberately graze out these domestic insects on garden produce, settling them on the feeding grounds in the morning, and carrying them back full of juice to the nests at night.

Differing though they do in almost every physical charac-

teristic, the termites, popularly called white ants, yet resemble the true ants in their methods of social organization, their division into workers, queens and fighters, and the orderly disposition of their habitations. Neither their relative helplessness, nor their forming the eagerly sought prey of almost every predatory insect, bird, and insectivorous mammal, alters the fact that their intelligence is not greatly inferior to that of the ants and bees themselves. In appearance the workers, with a yellowish-red head, and three pairs of legs, look rather like animated bolsters. Like the ants, they found colonies and inhabit subterranean nests, and like them, too, at the time of the early rains, the winged males and females issue in dense swarms from the previously opened shafts, to pour out into the twilight air. Fluttering, they dart wildly hither and thither, until, soon, they fall to earth, shed their wings, and run off in couples, the male following immediately behind the female, to seek some safe retreat where they may be secure from their enemies. The bodies of these potential queens and their mates are at this time about half an inch long, light brown in colour, and are said to be very good eating. Every bird, beast and insect is on the look out for them, and only a tiny fraction of the swarming thousands survive to another sunset. A pair which has been lucky enough to escape these early dangers establishes a nest, and soon the first generation of young workers is born. Unlike the ants, which come out of their eggs helpless maggots, to be carefully nursed and tended, the young termite, though at first very white and tiny, arrives fully equipped for life's struggle.

Ordinarily the inhabitants of a termite colony consist of the king and queen, inhabiting a large earthen cell secreted in the most inaccessible part of the nest; the ordinary workers, which are about one fifth to one quarter of an inch in length; the soldiers, of much larger size, their huge heads equipped with fearsome mandibles, and the immature forms of all the above kinds. The queen eventually swells to enormous proportions, the abdomen having developed into a huge sack several inches long, and crammed with eggs, which are laid at the rate of as many as eighty thousand per day. Soldiers

and workers are sexually imperfect, and may be of either sex. In this they differ from the true ants, among which all are sexually imperfect females.

Except in the case of one family—the "marching" termites —all white ants, workers and soldiers alike, are blind; but they are sensitive to light and display the most intense dislike of it; indeed, a few minutes exposure to a hot sun is sufficient to kill them. Apart from fear of light, it is absolutely necessary for the termite, when at work, to keep under cover, otherwise it would be quickly snapped up by its hosts of enemies. It has all the world against it. The insects burrow out from the nest by underground passages, the walls of which are firmly cemented, and when it is necessary to come above ground, they build covered tunnels formed of little clods of moistened earth, each firmly cemented one to the other. The industry of these creatures is untiring; every single tiny piece of clay has to be brought from the ground by a worker, put in place and duly fixed; in one night it is quite easy for them to run a tunnel half way up the wall of a house, or across a floor, so that in the morning they are found in the roof or inside a portmanteau. The ramifications of the alley-ways and tunnels are astonishing, and so is the insidious manner of working.

Their natural food is grass and dead wood, but everything is grist that comes to the mill. Paper, clothing, leather, practically all that forms human property that is not made of metal, is devoured. They will get into a door or the panelling of a wall, or a book-case, which continues to look perfectly normal from the outside until someone pushes against it, and the hand goes through an inch board as if it were tissue paper, to find on the other side, where solid wood and perhaps valuable papers or clothes ought to have been, only a mass of earth. Many a country resident has opened his trunk for the purpose of donning the long-packed-away garments of civilization, only to find them reduced to a few shreds of sticky cloth. In termite countries it is wise to put all articles on wooden frames a few feet from the ground; then at least the tell-tale tunnels up the supporting legs may be traced, and duly dealt with.

It is extraordinary what a sense these insects have for finding anything in the nature of food. It is quite common to see a series of tunnels leading ten or fifteen feet up the trunk of a tree, direct for a dead branch above. Tiresome nuisances as they are, and constant as must be the vigilance exercised to stave off their attacks, it cannot be denied that white ants have still something on the credit side. Their tunnelling work is continually bringing subsoil to the surface, and by ventilating the earth they promote plant growth, thus playing the part of the earthworm. Moreover, no soil is richer than ant-heap, and its closely cemented particles form hard and easily polished floors for huts. To white ants, also, is due the fact that the African forests are not cumbered with masses of decaying stumps and branches ; a fallen bough is soon discovered and the inside so entirely consumed that, while still outwardly intact, it crumbles into dust at the tread.

Termites are most injurious to thatched roofs, which they soon render useless against the weather, and besides it is unpleasant when lying in bed to have their tunnelling earth continually falling into the eyes. The insects make a kind of rustling noise when at work, either with their jaws or their feet. A friend of mine lying on the ground with only a blanket between him and the earth, noticed at intervals during the night a peculiar rustling, and in the morning discovered that the best part of the blanket on which he was lying had been consumed. However, on the whole the insects prefer to avoid the chance of disturbance while at work, and therefore deserted houses and huts are much more liable to serious attack than those in occupation. It is also noticeable that when the galleries leading to a certain point have been knocked down once or twice, the termites seem to take the hint and depart.

There are about twenty-two species of termites known in the Union, and at least a dozen are represented in the Low-Veld. Of these, the only ones that do not work subterraneously, but, on the contrary, come out in broad daylight on their foraging expeditions, are the marching or harvester termites, which possess eyes, and may often be seen marching

homewards, each carrying a piece of grass or a fragment of leaf in its jaws.

White ant-hills are of all shapes and sizes according to the species which builds them. Some, such as those of *Termes bellicosus*, probably the commonest species in the Low-Veld, attain a height of over twelve feet, and a basal diameter of twice as much ; others again do not show above ground at all, while some are betrayed only by a number of funnel-like apertures leading down into the nest. The interiors consist of a number of galleries, with well cemented sides and floors and many chambers of varying size, the whole kept scrupulously clean. The breeding rooms look like an earthen sponge, and contain a white fungus used as food for the young. They are found in the centre of the nest, which usually extends at least as far below the surface of the ground as the top of the mound rises above it. No doubt some of these nests are of great age, and the fact of large umtoma and other trees growing out of them, points to the tree having taken root in the rich soil of the nest rather than to the latter having been made round the roots of the tree.

When raided by predatory ants, the soldier termites put up a brave if ineffective fight for their workers and young ; if one of them can get a hold with his huge mandibles he can easily slice his enemy in two (if he is tickled with a small twig or straw he grips and holds like a bull-dog) ; but they are all so slow and clumsy in their movements that once the main guard at the gateway is broken through, and they can be taken in rear, they can make no show against the active and determined ant assailants, who seizing their clumsy bodies from behind, thus avoid the deadly shears of the jaws, and drag them off like any common worker. Some species of termites are provided with a proboscis, from the tip of which they jab a small drop of some kind of acid into the face of the oncoming foe, who immediately writhes in apparent agony, and rushes off violently or dashes round and round frantically washing his face with his foremost legs.

The best methods of combating white ants, or of warding off their attacks upon buildings, is by the use of various pre-

WHITE ANTS' (TERMITES) NEST, WITH ANT-BEAR HOLE

The ant-bear is an animal about the size of a pig and subsists entirely upon termites

WHITE ANTS' NEST

Another species of termite builds this conical nest

parations of arsenic. Poles previously well soaked in the solution may safely be planted in the ground, and the spraying of the roofs of thatched huts from the inside also appears to be an effectual remedy against both termites and borers. It is also a good plan to slice off the top of an ant-heap and pour a few buckets of ordinary arsenide-of-soda cattle-dip down the galleries ; what subsequently occurs is uncertain, but the nest is usually abandoned in a short time. No living creature on earth has solved the problem of existence more satisfactorily than the white ant.

The nearest relations to the true ants are the bees and wasps. The former abound in the Low-Veld. Their nests are usually made in the trunks of old trees, but sometimes are found in rock cavities. The best month for collecting honey is about March, though this depends to some extent on the dryness or otherwise of the particular season. African bees are notoriously short-tempered, and, especially in hot weather, are prone to resent any living thing passing near their hive. In 1924 two donkeys, when quietly going down to water, were suddenly attacked by bees and both were stung to death. The writer was once cautiously moving among some rocks, in quest of lion cubs. They had been located in a small bush-screened cave, half way up a kloof, and lest their mother should be near, it was essential to be vigilant. While thus slowly moving, every nerve on stretch, and thoughts concentrated only on lions, a bees' nest was unwittingly disturbed. In a moment all fears of an infuriated lioness springing from the rocks above had vanished ; white man and trackers were leaping down the gulley, beating the air wildly with their hats, and making with the utmost speed for a grass fire, which luckily was burning near by. A comforting reflection was that a pursuing lioness would have been in little better case, and might have had to seek safety also. Mutual antipathies would have been forgotten in a common danger !

Low-Veld natives have no system of bee-keeping, but are very adroit in robbing bees' nests, appearing, when thus employed, quite indifferent to the stings of the insects. A native, carrying in his hands an axe and a fire-stick, will steadily

follow a honey-guide to a bees' nest, whistling at intervals, as he walks, in reply to the chirrups of the bird. Then, while the guide perches on a high branch, the native pulls up a handful of dry grass, lights it with his fire stick, stuffs the burning mass into the mouth of the nest, and begins to chop the surrounding wood away with his axe. The enraged bees swarm forth, but the assailant keeps on alternately chopping and lighting fresh tufts of grass until he reaches the comb, when he lifts it out and walks off without more ado. The bird remains to feast on the derelict grubs, and such of the unhappy bees as have not been scorched or asphyxiated hold an emergency meeting as to what to do next !

Just before the early rains in September and October the bees begin to swarm, and may then any day be heard and seen changing quarters. They sometimes choose very curious places for their new homes. They like to get under the corrugations of an iron roof, or to swarm between the outer wall and the panelling of a house, and on one occasion the writer almost had to dismember the wood and iron bungalow in which he was living, in order to get rid of two swarms of bees, whose continual and strenuous hum, from daylight to dark, at last became insupportable. One day while the wife of a European ranger was walking in her garden, a swarm of bees settled on her head. Realizing her danger, with great presence of mind she stood perfectly still until a native, expert in the handling of bees, was summoned, and safely removed them. Recollecting this and similar episodes, it must be admitted that an approaching swarm of bees always conveys, to the writer at least, a sense of potential danger.

A peculiarly vicious type of small hornet is very common, and builds hanging nests of papery comb, sometimes in the most inconvenient places, such as the lintel of the house door, or the underside of a verandah chair ; the insects, usually only a dozen or so of them altogether, may be seen working away on the outside of their home. When discovered in such places, it is wisest to wait until after dark, and then to assail them with a piece of burning grass—that never-failing African resource against insect intruders.

The mason-wasps are most interesting, and very conspicuous insects. Long and slender in form, black, or black and yellow in colour, as soon as the hot weather commences, they invade any building or hut to which ingress is possible, and, with small particles of mud cemented together, industriously begin constructing their houses. The moment the female has laid her first piece of clay satisfactorily, she hurries out to fetch a second from some selected spot, and so backwards and forwards all day, and day after day without rest until a small fortress of very hard cemented earth, several inches in diameter, has been built into some suitable corner of a window or door. Next she seeks a good fat caterpillar or grub, and having paralysed it by a sting judiciously planted in a nerve centre, she carefully places it, with several more, in the nest ; she then lays her egg and closes up the entrance. When the young wasp grub hatches out, it finds food ready to hand, for, though quite paralysed, the caterpillars remain alive for many weeks, and so the wasp grub is able to grow to full size, after which it weaves itself a cocoon and changes into the pupa stage, ultimately to eat its way out of the nest, a complete wasp. There are several species of these mason-wasps, and I have never known any of them in the least aggressive ; but their activities are often annoying in that they will build in the most inconvenient places, such as the interior of a clock or the back of a looking-glass. Another mason insect has a partiality for some small orifice such as that of a rifle barrel, and once such a thing has occurred it is very difficult indeed to get the weapon clean again, some acid present in the cement being injurious to the metal.

A very handsome sand-wasp (family *Fossores*) of bright metallic blue, with a red head, and about two inches long, is, on the wing, one of the swiftest and most graceful insects it is possible to imagine ; his principal prey consists of large spiders, beetles of all kinds, and even tarantulas. He is extremely active not only when flying but also on his long legs, and may often be seen hauling along a huge spider, which he has paralysed, and is about to place in his underground larder. If driven from his prey he disappears, but shortly comes

swooping down again and resumes his occupation. I have also seen these wasps stoop at insects on the wing, much as a hawk does at a pigeon, and this is also the habit of the assassin flies (*Asilus*). The parasitic ichneumon flies attach their eggs to larvæ or egg capsules of large insects such as moths, butterflies, cockroaches, etc. All these wasps and ichneumons, while perfectly innocuous towards man, do a great deal of good work in keeping down overwhelming insect life. They are solitary by habit.

Locust visitations appear spasmodically at intervals of years. After a period of rest, the swarms suddenly arrive from the west and sweep across towards the east. There are two species common to South Africa, the red locust, which roosts by night on the trees, and the brown locust which settles on the ground. Swarms of the former raided the Low-Veld in 1906 and 1907, disappearing in the latter year as suddenly as they had appeared, probably owing to a parasite which always attacks them after a time. These red locusts were attended by great flocks of storks and other insectivorous birds, and their arrival was a thing to be remembered. As soon as the great dark cloud appeared on the horizon, every native who could be summoned was employed in beating tin cans, and making all the noise possible, to keep the locusts off gardens and fruit trees. As evening came the forest trees around the station appeared entirely covered, and, as it were, groaning under the immense masses which completely concealed the foliage and branches. At the same time the vicinity became an aviary of storks, egrets, and other insectivorous birds, all steadily following the swarm, sleeping where it slept and moving on when it did. After an interval of over seventeen years in which not a locust was seen, the brown variety made its appearance about the middle of 1925 from the north-west in enormous swarms. This time everything was ready. The Agricultural Department having provided arsenic, sugar, and spray pumps in plenty, it remained only to mark down the breeding places of the swarms and await the appearance of the young locusts in the hopping stage—*voetgangers*, as they are called in South Africa.

When a swarm has laid its eggs, which it does in a more or less restricted area, the flying insects die, and after about a month the small locusts, as yet unprovided with wings, appear in little batches. It is in this stage that they are most easily dealt with. As they grow bigger, these little isolated groups unite to form huge armies, each of many millions, which soon begin to trek in a definite direction ; this, in the case of the 1925 visitation, was invariably northwards. These treks go on for miles, and a swarm may cover anything from fifty to five hundred square yards, or even more. As they hop along, which they do all day, resting only at night, they eat up every green thing in their track ; fields of grain disappear as if by magic, there is not a blade of grass or a green shrub left where they have passed. When they have arrived at this nearly full-grown stage they are, of course, harder to deal with than earlier, and therefore all efforts have to be concentrated on attacking them as soon as possible.

When the *voetgangers* are come to the size of adult locusts they produce wings, and after a few days of fluttering about *in situ*, the whole swarm rises from the earth and departs on its voyage. In the Low-Veld all the swarms fly eastwards, which ultimately takes them into Portuguese East Africa and the sea ; indeed, it is recorded of one of the old visitations that a strong wind blew all the swarms right out into the Indian Ocean. Anyhow, swarms which have once crossed the Lebombo seldom if ever return, nor are there records of the new swarms hatched from eggs laid east of these hills having flown westwards. Of course they are very subject, when flying, to the direction of the wind, but so far as it has been possible to observe their movements, in the Low-Veld the flying swarms always go from east to west and the *voetgangers* from south to north.

The system adopted in that part of the Low-Veld where the writer had control of the campaign was to divide the area up into a number of sections, each under a white officer ; under him again were a number of gangs each of four natives provided with two spray pumps, two buckets, and several tins containing arsenic and sugar solution. Each gang concentrated on

one swarm until it had been thoroughly sprayed, and then followed on to the next, until their sub-area was cleared. Reports were rendered weekly by each section, showing the number of swarms destroyed. The arsenic preparation proved immediately fatal to the insects; in fact, a slight sprinkling of the swarm was sufficient to destroy it. A moving swarm could be effectively dealt with by spraying the grass in front. Although the mixture was highly poisonous, still, if mixed in the correct official quantity with water, it seemed quite innocuous to everything except locusts, and, in the writer's area at least, there were no cases reported of wild mammals or even of birds having died from its effects. Locusts killed by the preparation emitted a disagreeable odour, which perhaps discouraged animals from touching them. At the end of two months' campaign we destroyed in the area between the Olifants and Crocodile Rivers over seventeen hundred swarms, and all the crops were saved, so the readiness of the Government to deal with the situation, by providing the necessary material at considerable expense, was well justified. Fortunately 1924-25 was a very wet year, and the brown locust, being naturally a lover of dry desert conditions, did not thrive, while the heavy floods of February and March washed away the eggs of many swarms, and prevented any more breeding out. This was fortunate for our Portuguese neighbours, who had taken no steps to meet the menace in their country.

Locusts are eaten by the natives; their women sally forth with baskets and sacks whenever a swarm of *voetgangers* is reported in the vicinity of a village; the wings are torn off, and the insects are then dried in the sun, to be later cooked and eaten with porridge. All insectivorous birds and a great number of carnivorous mammals, including jackals, civet cats, and mongooses, are partial to them, and they are also readily eaten by baboons and the herbivorous wild animals. It was, therefore, not only satisfactory, but also surprising that no casualties during the campaign occurred either to man or beast. In order to be fair to the natives, when swarms had been detected near villages, operations were delayed for a

day or two to allow the women to collect as many of the insects as they required.

The locust campaign of 1924-25 gave an indication of the progress of the natives in seventeen years; everywhere the villagers willingly assisted, not only by pointing out and guiding the operators to new swarms, but also by themselves lending voluntary help; they quite realized the utility of the campaign. It was otherwise in 1906-7, and I remember the unhappy appearance of the owner of a field of sweet potatoes in the midst of which a swarm of hoppers had been sprayed. "Well," I said, "these locusts will not do any more damage to your crops, why do you look so unhappy?" The old man sighed. "Of course, the white man must do as he pleases, but you have not only poisoned all the locusts so that we cannot eat them, but you have spoiled all my sweet potatoes as well!"

The Government had also learned wisdom. In 1906 the arsenic and the sugar were issued separately, the latter in big sacks of, certainly, the cheapest kind of brown sugar; but its cheapness and relative nastiness did not prevent a great deal of it from going where it was not intended. In the last campaign arsenic and sugar were issued already mixed in liquid form, and all that was necessary was to add the required amount of water, in accordance with the clear directions printed upon each tin.

Of all the pests which burden life in a hot country perhaps the so-called house-fly is the worst. In the pursuit of its malevolent career it specially devotes its attention to man and his domestic animals. It is an abominable, disease-carrying, filthy pest, and whatever good work it may perform as a scavenger is far exceeded by the evils it brings to suffering man. In the hot weather it is impossible to sleep, eat, or do anything at all requiring the use of both hands, in comfort, and personally I could not live in a tropical country without the aid of a fly-swish of some kind. Flies are worst in the neighbourhood of cattle posts, and although in the Low-Veld they are less numerous than in parts of central Africa, where they really often make life quite intolerable, they are still sufficiently obtrusive to upset the temper, and to add to the

fatigues of a long march. Next to scrupulous cleanliness in the neighbourhood, the best way of mitigating the nuisance is to keep plenty of poultry, which scrape up and eat the maggots; while a mosquito-proofed house is just as useful in keeping off these pests as those for which it is primarily intended.

Mosquitoes are rare in the Low-Veld, as compared with many places in Africa, otherwise similar in character, but what they lack in quantity they more than make up in quality. The commonest type is a very insidious and exceedingly malignant member of the *anopheles* family, *Pyretophorus costalis*, a small black insect with dark wing edgings. Its favourite haunts are under tables and chairs, in the thatched roofs of huts, and in the dark corners of a room. It is as busy by day as by night. It gives no warning of its presence except a very faint and staccato "ping," which is inaudible unless the room is perfectly quiet. It can get through most wire mosquito-gauze, and any bed-net mesh which is not of small size. As a conveyer of malarial fever it is *facile princeps* of all the *anopheles* types within the writer's experience, and its secretiveness probably accounts for the manner in which old hands were accustomed formerly stoutly to assert, when inveighing against the "mosquito" theory, that they got fever "where there was not a single blooming mosquito!" The common *Culex* is seldom seen; certainly more may be encountered in one night in Johannesburg than in a whole year in the Low-Veld.

Of the numerous biting flies the most prominent are the so-called hippo flies (*Tabanus*); they are about twice the size of the largest English bluebottle, and have a flight like a rocket, going straight for their objective and biting through even a fairly thick shirt. This fly is known in the Sudan as *Shirut*. Hippo flies are of many types and many colours, but all equally painful as to bite, and blood-thirsty as to nature. They draw blood in streams from horses, and at times make them quite crazy. Fortunately they are not active all through the summer, appearing with the first really hot weather about October, and are not much in evidence after January is over. They are so

quick and alert that even when they settle they are very hard to kill, and their vicious buzz is always sufficient to rouse the sleeper under a tree to a sense of his peril. Various species of the biting *stomoxys* are also common, and so is a vicious gadfly, which, however, attacks horses and other equines more than it does man. The tsetse, fortunately, is no longer with us. Nearly all the country between the Sabi and Olifants, and a great deal of that lying north of the latter river, was infested prior to the rinderpest epidemic of 1896; but after the cessation of the plague the fly was found to have disappeared entirely from the whole of the Transvaal and adjoining Portuguese Territory. Sand-flies are another pest, and emulate mosquitoes in their biting capacity, and in the vicious "ping" of their wings.

Among minor pests are the bot-flies, which in the hot weather cover horses with their small yellow eggs each firmly attached to a hair, and one of the principal duties of a native groom at evening stables is to pick off these undesirable attachments. Bots do serious harm; but in the Low-Veld a horse seldom dies from their effects. A very disagreeable fly is one which lays its egg in an animal's skin, and sometimes in washing hung out to dry, whence it later gets inside the epidermis of the human wearer; from the egg emerges a maggot, which grows as big as a slug, and sets up severe inflammation. It is usual to wait till a swelling has formed, and then squeeze the creature out. Large maggots are found in the frontal cavity which lies at the base of the horns of bubaline antelopes; there are about half a dozen of them together in a sac, and they are quite half an inch long and a quarter of an inch thick. The eggs are probably taken in through the nasal ducts, and the chrysalis, or complete fly, departs by the same road. It used to be said by the old hunters that the reason underlying the mad gambols of the black wildebeest was that he was suffering from the maggots in his brain!

Moths and butterflies are without end; both are often very beautiful, but in the caterpillar stage are a serious pest. Among the worst of these latter is the so-called army mystery

worm (*Laphygma exempta*). In certain seasons these caterpillars suddenly make their appearance in hordes of such uncountable millions that they extend over several miles of country and, moving slowly along, destroy every green thing in their path in an even greater degree than locusts. In 1926 they were abundant in the Low-Veld, and in some places every blade of grass had disappeared for many miles, leaving only the bare earth showing.

Grasshoppers of all kinds, of course, swarm in the hot weather, and do incalculable damage to garden produce, eating off the young vegetable shoots as soon as they begin to show above the ground. The boll-worm, which attacks cotton, seriously imperils the success of that industry in the Low-Veld, and at present no adequate counter to it seems to have been devised. Codling moths and fruit-flies harass the orchard, and in the case of citrus, it is not uncommon in a bad fly season, to lose the whole of the early fruit. The fly stings the young orange, lays its eggs, and the fruit soon turns pale yellow, and drops off the tree. When opened it is seen all discoloured inside, and contains several small maggots. In some seasons there are visitations of fruit-eating flying beetles (*Catoniid*), and the farmer is lucky if he gets off with the loss of fifty per cent. of his fruit crop. Swarms of a very handsome green flower beetle of the genus *Pachnoda* utterly destroyed the fruit on some gauva trees in 1922, and even attacked the citrus. Of other beetles, great and small, winged and otherwise, there is no end.

Every traveller in the tropics knows what happens when he tries to dine by candle or lamp light on a warm, still night; countless hordes of flying beetles, bugs and moths of every known and unknown kind descend upon him in millions, fall into his food, get into his eyes, and usually end by putting out the light if it is exposed. But there is a silver lining to every cloud, and the entomologist, provided with the simple adjuncts of a killing-bottle and a candle, plus a box of matches to keep relighting the latter, can spend a most interesting evening without moving from his camp chair.

Cockroaches are in most places as numerous as they used

to be in the old days on ship-board. In addition to the ordinary clothes moths there is a very primitive type of silvery insect known as the fish moth (*Lepisma*). Should a pile of old papers or books be turned over, there will come swiftly running out a little shining creature with three long fine tails ; its specialities are paper and clothes of any kind put carelessly away without the essential guard of naphthalene. The chief scourge of the taxidermist is the Bacon beetle (*Dermestes lardarius*), a small winged insect, dark above, and dirty white below, which lays its eggs in skins, drying or already dried ; the result is a hairy carnivorous caterpillar, which quickly eats up a hide of any kind, leaving only the hair. Dressed skins do not altogether escape, and valuable trophies, even after setting up, are liable to be destroyed unless poisoned with arsenic. There are small insects known as " borers," which vie with the termites in making dwellings uninhabitable. These tiny creatures bore their way into any but the hardest woods, till the beams or poles are like a honeycomb. While they are at work, the fine dust resulting from their activities descends in such clouds that the floor of a hut unoccupied for some days will appear as if it was thickly carpeted with sawdust. Moreover, this dust is continually falling, and if it should get into the eyes, it is apt to cause painful inflammation. But were count made of the thousand and one insect tribes which prevent Low-Veld life from ever being dull or lacking in incident, it would be possible to fill several large volumes.

It is unnecessary to describe the ultra-plebeian forms of insect life, which, alas ! are often impossible to avoid and against whose invasion of house and home constant watchfulness must be employed.

There are, however, many insects which, besides having the good taste to leave man alone, are in themselves of extraordinary interest. Among these is the Ant-lion (*Myrmeleon*), which is said to turn into a handsome winged creature of the dragon-fly type, but in its best-known or larval condition, is a tiny creature with huge jaws, savagely voracious, and obtaining its food in a peculiar way. Scanning a piece of sandy ground, there will be at once noticed a number of small

depressions from an eighth to half an inch deep, like inverted cones. Drop a small piece of grass into one, and immediately a little spurt of sand will shoot up ; but if a second piece is dropped, the ant-lion will recognize that he is the victim of a joke, and will ignore it. Watch, however, what happens when an unwary ant or other small insect, hurrying along incautiously, falls into the crevasse. Recovering, he at once endeavours to climb up the loose sandy side of the pit, which gives way and precipitates him to the bottom ; before he can make another effort up shoots a little spurt of engulfing sand ; he escapes, and makes another wild dash ; another spurt, and down he goes again ; a few more frustrated efforts and he sinks out of sight in the bottom of the pit, dragged down by the eager mandibles of the hidden ant-lion. When sucked dry the discarded carcass is thrown outside the pit, and the ant-lion, insatiable, settles down under the sand to await the next careless passer-by. Ant-lions are always difficult to locate ; they are wary, and far more nimble than would be expected ; they seem to proceed by jumps, and have immense burrowing capacity. Although small weakly-looking things, other insects seem to dread them even on the very rare occasions when they are met outside their fortresses. The writer once watched a small caterpillar, which something was trying to pull from the inside down a small hole. Presently a patrolling ant came along, seized the other side of the caterpillar and began pulling the opposite way ; not having obtained a good grip, she went round to the side next the hole, and as she did so something darted out at her like lightning ; just escaping, she turned and made off at best speed. Immediately opening the hole, we were surprised to see an ant-lion inside.

The sacred beetle or scarab is found all over the Low-Veld. Throughout the day in summer, but especially in the early mornings, it may be seen industriously rolling a huge ball of manure along the path or through the grass towards the burrow which forms its home. The propelling is done by the hind feet, and the insect pushes backwards with its body at an angle from the ground.

A " STICK " INSECT, THE OUTSPREAD HAND SHOWS ITS RELATIVE SIZE

A BLACK MAMBA, THE DEADLIEST SNAKE IN AFRICA
(CHAPTER VIII)

The stick-and-leaf insects have to be seen to be believed. It is impossible to conceive anything more like the originals, and they are among the best examples of insect mimicry in existence, though, of course, they have many rivals in those innocuous and succulent insects which have to ensure their preservation by simulating either some insect not good to eat, or one of a predatory nature, such as a wasp.

The praying mantis is an extraordinary looking creature, usually of a light green colour, with long, slender, stalk-like body and legs, the front pair of the latter very long and strong, furnished on the inside of the lower tibia with strong curved spines. The whole insect is often three or four inches in length, and is generally seen with the forelegs raised as if in prayer, and the head bent forward ; actually it is looking out for a suitable victim. It is so ungainly looking a creature and remains in such perfect quietude for such protracted periods that the onlooker is not prepared for the swift action which occasion calls forth. One came to perch on the writer's leg while he was sitting under a tree. It was a hot day, and a lot of flies came buzzing about, lighting from time to time on places where patches of sunlight struck the trousers. The mantis sat quietly watching during at least a quarter of an hour for a promising opportunity. At last, finding sport indifferent, it decided to change quarters, and in a flash it had transferred itself to the other leg. This proved a better hunting pitch ; a fly came along and perched incautiously a few inches away. Just one quick movement, too swift to follow—there was no more fly, and the mantis was back as before, in his attitude of deep reverence. These creatures seem attracted by light, and at night sometimes are found seated on the camp-table watching the progress of the evening meal.

Of late years it has been recognized that grass ticks are the source of most of the stock diseases which afflict the sub-continent. These horrible creatures are, the scientists state, not insects at all, but belong to the same order—*Acarina*—as the mites, and are akin to the spiders and scorpions ; they can be distinguished from insects by the presence of four pairs of legs instead of three, and the absence of antennæ. All ticks

are blood-sucking parasites. They are divided into two families, one of which, *Argasidæ*, includes the tampan (*Ornithodorus moubata*), which conveys the serious spirillum tick fever to man, and another disease to fowls. This creature likes to hide in the crevices of the mud floors and walls of huts, whence it issues forth at night, feasts on its victim, and, like the common bed bug, retires again to shelter before morning. So dreaded are these ticks and so dangerous, that natives will not endure sleeping in a hut which has once become infested, and time and time again it has been necessary to order the burning down of rest-houses and police picket huts owing to this cause. They are specially common in Portuguese East Africa, and are introduced to the Low-Veld by travellers therefrom. The fever conveyed by them is a relapsing type, with all the symptoms of malaria, but does not yield to quinine treatment.

To the same family belongs the fowl-tick (*Argas persicus*), which conveys a fatal disease to poultry, and also frequently so weakens those birds which recover that they die from anæmia. The family containing most of the other species of ticks, about thirty in all, is the *Ixodidæ*. Most of these species carry diseases such as biliary fever, fatal to dogs and equines, gall-sick, redwater, East Coast fever and heartwater, fatal to cattle and sheep. The breeding habits vary with the species, but usually there are several stages in the life cycle: that is to say, the larvæ, nymphs, and adults, in succession become engorged on a host, and dropping off, moult into the next stage.

A tick which has sucked the blood of an infected animal carries the disease through its moulting, and conveys it to the next host to which it attaches itself. The tiny larvæ, barely visible to the naked eye, have the habit of burrowing into the skin, and causing the most intolerable itching, and so small are they that their presence is usually discovered only when the mischief is done. Old unburnt grass in the Low-Veld is full of these pests, and this often makes grass-burning, in general principle quite wrong, seem to be a desirable thing. For many years the losses from gall-sick, heartwater and biliary

fever took heavy toll of stock, but only the arrival of the imported "East Coast fever," so deadly that about ninety-five per cent. of the animals attacked died, caused the public to awake to the menace of the tick. Scientific investigation fixed responsibility on it, and then came the idea of dipping all stock, especially cattle, in a solution of arsenic. This plan is now general all over South Africa, and in certain districts is compulsory. The dips are excavated to a depth of about nine feet at one end, and are long enough to give the animals a swim of about thirty feet. They are lined with concrete. The animals are driven in at the deep end, swim till they find their feet and then walk up an inclined plane into a drying pen. Those parts, such as the ears and under the tail, not reached by the dip, are dressed with a mixture of oil, paraffin and tar. In this way in a few years East Coast fever was almost eradicated, and the mortality from other tick diseases reduced by eighty per cent.

It is not practicable in a country such as the Low-Veld to exterminate ticks, but at least the infected ones, which naturally would be chiefly found in the vicinity of cattle runs, are mostly killed off by dipping, and the stock is also freed from the masses of the parasites, which formerly used to fill the ears and cling to every portion of the poor creatures' bodies. The activities of one kind, known as the bont-legged tick, are particularly objectionable. This creature has a partiality for the udders of cows, and buries itself so deeply that after it drops off gorged with blood, its poisonous bite sets up a sore, which frequently causes the teats to go blind. Cows blind in two, three and even all four teats from this cause are often seen, and in the latter case are, of course, unable to suckle their calves.

Dipping has largely done away with all these evils. Provided the strength of the dip is not too great, it is quite innocuous to cattle, but equines, which perspire through the skin, are certainly more susceptible to the effects of the poison, and if dipped at all, the results on each individual should be watched carefully. Ticks look what they are—thoroughly revolting and evil—flat and squat, with hard shell-like backs,

and crooked clawed legs; except for their armoured coat, they have very much the appearance of the disgusting creature which used to be known euphemistically as the "Norfolk Howard."

The spiders, tarantulas and centipedes all belong to the invertebrate *Arachnida* class. Since any creature that preys upon insects must be regarded as a friend, especially in tropical countries, the Low-Veld no doubt owes a great deal to its numerous tribes of spiders. The most conspicuous of the group is a huge black and yellow individual which spins its web of yellow silk between the branches of trees and bushes, usually about the height of the human face. The silk is so strong and elastic that in its natural state it has very nearly the consistency of silk thread, and when a web is incautiously walked into, it takes an effort to free the face from the entangling cords. The webs of this spider are usually hung by long silken cords between branches, and when alarmed the owner dashes for the shelter of one or other of the connected trees. Moths, the smaller flying beetles, and other quite large insects can be enmeshed.

The trap-door spiders (*Theraphosidæ*) live in a hole in the ground, the entrance to which is closed by a neatly made, round door, which fits exactly over the entrance, and remains closed while the animal is at home. There are a great many other hunting spiders, which do not spin webs at all, but catch their prey by lying in wait and springing out upon it; they usually, however, draw out a thread behind them when they leap either to catch prey, or to spring to a new station. The crab spiders have round, flat bodies, and very long sprawling legs, and are those most frequently found in dwellings in the Low-Veld, generally ensconced in some corner or crevice whence they leap on any unwary insect that happens along.

The huge hairy tarantulas are among the most repellent looking of creatures according to our ideas, and moreover can inflict a painful and poisonous bite; they are often quite two inches long, and perhaps it is their hairy appearance that revolts the observer; they must appear horrifying apparitions

to their prospective prey, as they dash out from some place of concealment. They attack insects as big as grasshoppers, and are said to kill small birds and mice, though this has not been personally noticed.

The centipede is another unpleasant looking and highly venomous creature, with its two long projecting feelers and its numerous crooked legs, each armed at the end with a poisonous claw. From its very appearance it could be nothing but poisonous, and should never be (though it sometimes is) confused with the perfectly harmless and scaly millepede, whose only means of defence is to roll itself up into a tight ball, and in spite of, perhaps because of, its confusing multitude of limbs, can move only at a painfully slow pace, whereas the centipede is extraordinarily quick on its less numerous legs.

Scorpions rank among the lesser dangers of the Low-Veld ; their crab-like pincers and long flexible tails distinguish them from every other creature. In some parts of the world they are said to grow to a large size, and an extinct member of the order was several feet long, but in the Low-Veld they never exceed a couple of inches, and that is quite big enough for all practical purposes. J. H. Fabre, in his delightful work " Life, Love and the Insect," writes charmingly and sympathetically about scorpions. It is the bounden duty of every observer, even of an amateur, to be sympathetic to all the creatures he studies, and the scorpion is entitled to gratitude for its insect destroying proclivities, yet it is not easy to cherish any great feeling of tenderness for it. During the hot wet season it is necessary always to be on the look-out for the creature ; it has an insidious way of penetrating the human dwelling, and is even found ensconcing itself under the pillow of the bed. But on the whole its favourite position is on the underside of a board, beneath a box, or a pile of papers ; such things as old official files therefore must always be handled with a certain amount of caution.

The sting, which is inflicted with the very sharp curved brown spike at the end of the long flexible tail, usually gets the human being on one of his incautious fingers. If the animal is a large one, or in robust health, the finger, the hand, and

often the whole arm up to the shoulder remains numb for some hours; and there is a good deal of pain and a little nausea. Persons who are in bad health, or with their blood out of order, may even die from a severe sting. The remedy, as in first aid for snake-bite, is the excellent permanganate of potash, rubbed into the previously scarified wound. A bad sting was once quite cured by putting in pure carbolic acid; but it was afterwards regretted that the scorpion poison had not been allowed to run its course, as the lesser evil of the two, since the pain would have been over sooner, and the wound have left no trace behind, whereas the mark made by the carbolic acid remains to this day.

The writer once owned a baboon, an animal which looks on scorpions as dietetic luxuries. Jenny would spend hours patiently turning over every loose stone in her neighbourhood until her quest was duly rewarded by sight of the lurking prey. Then she would seize it, and, like lightning, pull off the end of the tail, placing the rest of the animal without ceremony in her mouth. All the time she was angling for an opening, before darting on her victim, she was whimpering from fear, and her perseverance in the face of obvious physical terror formed a good illustration of the triumph of mind over matter.

When sitting round a camp fire some care should be taken when putting on a fresh log, and the creatures sometimes emerge from a hole in a burning stick when their surroundings have become too warm for them, and take up a safer position among the blankets. Never in my life did I see so many scorpions together as shared with me an old house at Bor, in the Sudan. At night, which is their work and play time combined, they used to issue from every possible and apparently impossible place to spend the hours in riot, chasing one another up and down the walls and all over the floor, until I used to feel I knew almost every individual by sight. Probably because always prepared for trouble, I was never personally stung in that house, though the native servants suffered. It is always well, by way of precaution against these and other noisome creatures, to tuck in the mosquito-curtain well, and, on getting into bed, to look under the pillow.

In this chapter the Low-Veld has perhaps been made to seem rather an unattractive place, and indeed I have not mentioned by any means all the winged and crawling creatures which feast and prey upon man, his food and his belongings; at the same time it must be borne in mind that the insects are conspicuous for barely half the year, and the period of their supreme domination does not extend over more than a few months. To the new-comer, indeed, the months of January and February are sometimes apt to appear rather a nightmare, but on the whole the Low-Veld compares very favourably in this respect with many, probably most, of the truly tropical regions of Africa, and a resident from the swamps of the Nile, Niger, Congo, or Zambezi would with justice look on it, even in its worst months, as a delightfully restful spot.

Everything is, after all, a matter of comparisons, and there is as much difference between the virulence of the summer insect plagues of, for example, Bor on the Upper Nile, and Komati Poort in the Transvaal, as there is between those of the latter place, and of the quiet country town in the midlands of England. A house, well wired in with mosquito-gauze, and a fly-swish for out-of-door work, serve to keep at bay the insect world in general during the months when it is most active, while the application of modern scientific invention has done much, and doubtless will do yet more, to mitigate its attacks upon man's belongings.

PART III

MAN

Hunting Scene, depicting a Bushman, Lion and Waterbuck cow.

A Skirmish between Bushmen.

TRACINGS OF LOW-VELD BUSHMEN PAINTINGS
(Reduced about one eighth.)

CHAPTER X

HISTORY

The Bushmen—Early Bantu migrations—Zulu conquests—Civil wars—The coming of the white man—Fall of the Gaza kingdom

THE earliest known inhabitants of the Low-Veld were the Bushmen. Still entirely in the hunter stage of human progress, that strange and interesting pigmy race combined with their savagery a highly developed pictorial art. They knew nothing of agriculture, they built themselves no dwellings, but they have left so clear a record of themselves upon the surfaces of the rocks which sheltered them that even had they completely vanished ere ever the first European made his appearance, a great deal of information would still have been available regarding their lives and habits.

The broken country below the Berg, between the Sabi and Crocodile Rivers, has already been described as containing many caves. These, together with rock recesses, overhung by eaves of granite or gneiss, were in former days the homes of many families of the little people. The interiors of the caves and the undersides of the overhanging rocks are often found to be profusely decorated with paintings of men and animals, many still in an excellent state of preservation. They are executed in some very durable red pigment, which was possibly, either wholly or in part, obtained from the root of the elandsbontje (*Elephantorrhiza burchellii*), a small plant which is found growing in the vicinity of the caves. A solution of this plant, tested upon fragments of rock, leaves a dark red stain, difficult of removal, and similar in shade to the Bushmen paintings.

The wild animals depicted are such as still exist in the vicinity; the human figures all represent men of uniform type, totally nude, and armed with short bows, the arrows for

which are usually shown carried between the fingers of the left hand. The paintings are of all ages ; some almost obliterated by time and weather, others comparatively clear and fresh. A few pictures show combats between small bands of warriors all equipped alike ; others represent human figures in postures of supplication or devotion ; kneeling with outstretched arms, or bending double, the forehead touching the ground. The caves containing the paintings are all close to water, and to grassy valleys, which formerly, as to-day, were doubtless favourite feeding-places for game. It may therefore be surmised that the sites were chosen for their amenities, and not as affording refuge from enemies, and it follows that even the most recent of the paintings must be comparatively ancient. The Bantu tribes certainly arrived in that part of the country not later than A.D. 1500, possibly earlier, and it is not to be supposed that after their arrival the Bushmen would have been permitted to live and hunt in peace. Elsewhere in South Africa such Bushmen paintings as are known to be of fairly recent date are always found high up in inaccessible gorges and cliffs, selected for concealment and defence, and they often depict figures easily recognizable as portrayals of white men and kaffirs. In the Low-Veld pictures neither of these find any place. Under the floors of the caves, beneath an overlay of debris—obviously Bantu relics—have been found quantities of chipped chert or hornstone, neither of which exists nearer than the Crocodile River, twenty miles distant ; they must have been fetched thence to be fashioned into implements. Among the higher caves are no traces of Bushmen work, only fragments of kaffir pottery and of human bones, which support the local native tradition that these hills were the home, about a hundred years ago, of some refugees, said to have been cannibals. The Amambayi, who have lived in that part of the country for several generations, have no record of any people but those of Bantu race, and when questioned as to the origin of the paintings, usually reply that they were made by white men. For instance, old Mhobo-hobo, who was over seventy years old when he died, expressed popular opinion when he said : " No ; I have never heard of any people except ourselves

having lived here. My father was an old man, and he would certainly have spoken of it, had any such existed in his time. I know the people to whom you refer from hearsay, having heard them spoken of by friends in the High-Veld, where they are called ' Makwelane ' ; but none of them have ever lived in these parts."

Whether the Bushmen were the first human inhabitants of the country, or whether, with their poisoned arrows, they destroyed some earlier and still more primitive race, is now an unanswerable question, though isolated discoveries in various parts of South Africa give some ground for suspecting that a people of larger size than the Bushmen did exist there in very ancient times. At any rate it is pretty certain that, prior to the earliest Bantu invasion, the Bushmen had been the only permanent inhabitants of the sub-continent for some thousands of years. That during the period of their occupation of the Sikazi region they were also resident in the Lebombo country appears improbable. Every cave and overhanging rock among the hills and kopjes of the Low-Veld bush, hitherto examined, has shown a blank record, though the majority are filled with traces of recent occupation by Bantu refugees. Chert arrow heads are, it is true, sometimes picked up all over the low country, serving perhaps to indicate that the Bushmen of the period, undisturbed and at ease, preferred to reside in a pleasant, well-watered area, but from time to time came down into the hot dry lowlands in pursuit of game. Perhaps the little hunters of the Sikazi evacuated hurriedly, or it may be that they were exterminated by a sudden onslaught on the part of Basuto tribes coming from the West, since Basutos were occupying the former Bushman country when it was first discovered by white men.

Nothing is definitely known of these old days ; but it is possible in idle moments to reconstruct imaginary scenes of the past. Sitting under a shady tree, in the drowsy heat of a summer afternoon, we gaze over kranz, and kloof, and green valley, and subconsciously such a vision unfolds itself.

There stand Logogote, and Ship Mountain, and Pretorius Kop, all the old landmarks, just as we have always known

them ; yonder the deep valley of the Sikazi. There are no huts and grainlands in the foreground, and the trees are of larger types than are now usually seen, but otherwise the country looks much the same as usual. It seems to be early morning, and the dew-laden grass sparkles in the rays of the lately risen sun. All around, far as the eye can see, are herds of game. A long string of wildebeeste is filing along the game track to the right. From the river valley come the sonorous gruntings of undisturbed hippopotami. Reedbuck are scattered like sheep all over the landscape. And those great dark masses half a mile away on the hill-side are elephants. We can see their great ears flapping, and can hear the rending of the branches as they browse amongst the trees.

Loping along at a jog-trot, one behind the other, two little men pass along the base of the hill below us. They are quite naked ; tawny yellow in colour ; their hair growing in tufts, like peppercorns, on their bare heads. Each carries a short bow, and some diminutive arrows in a little hide satchel slung across his body. Their sharp beady eyes glance rapidly from side to side.

In a little hollow two hundred yards away, a big bull eland unconcernedly browses, his tail lazily flicking at the flies. Quickly and silently the two little men vanish as if the earth had swallowed them. They have utterly disappeared, but looking closely we can see the tops of the two-foot-high grass gently moving in betrayal of their course. The bull browses on in false security. Suddenly he starts as if stung, and breaks into a heavy gallop, which soon subsides to a trot, and finally to a walk. Then he halts and looks round to ascertain what has struck him. There is nothing to indicate danger, and after a long careful stare in every direction, the beast walks slowly away. But he is doomed. Two little reed shafts, their sharp stone tips steeped in a deadly poison, have got home in his great body, and first discomfort, and then pain assails him. He bites at the seat of injury and rubs his side against a friendly tree. Both shafts have fallen out, but the heads hold fast, and death is in his veins. Carefully two little heads obtrude themselves from the grass which still conceals their bodies,

and two pairs of sharp eyes are fixed upon the retreating prey. The eland slowly climbs an opposing rise, halts on the summit, and once more stands stationary, now with head hanging and exhibiting every sign of distress, He sways a little, recovers himself, and then comes crashing to the ground. Our two hunters spring to their feet, and, all necessity for concealment at an end, jogtrot up to the dying animal, satisfaction expressed in their smile-wreathed faces, and in an unceasing rattle of self-congratulatory clicks and clucks. Soon a little spiral of smoke curls up towards the sky, and, in answer, little figures begin to show among the rocks of the bush-crowned kranz across the valley. The women and children are hurrying to the expected feast. The herds of game are still quietly grazing, the elephants are unconcernedly moving along the hill-side; wild Nature remains totally undisturbed by the little tragedy, which is merely a part of her routine, like the huntings of the lion and the leopard; for the Bushman is as surely her child as either, and she accepts him within her freemasonry on equal terms with her other children.

The earliest Bantu narratives do not take us back much more than a hundred years in Low-Veld history. Before that all is tradition and surmise. Among people ignorant of the art of writing, two or three generations usually embrace the whole of known history. On the other hand, the names of chiefs are remembered and handed down for centuries, remaining household words long after the most stirring events which characterized their period have passed into utter oblivion. Fortunately for us, Portuguese records, dating from the beginning of the sixteenth century, still exist, and provide useful, if incomplete data concerning Bantu history in south-east Africa, from that time onwards.

Some years ago, the writer had the privilege of being the guest of Senhor Viana Rodriguez, at that time Administrator of Maputaland, who was employed in writing a history of the portion of Portuguese East Africa lying south of Delagoa Bay and had been for that purpose given access to the Government archives at Lourenço Marquez. Senhor Rodriguez said that

he had found the records much less informative than he had anticipated, owing to large gaps in their sequence. He had ascertained that when, a good many years before, the capital of the province was transferred from Moçambique to Lourenço Marquez, a large room in the palace was found to be crammed with old papers connected with the administration of the Portuguese settlement at Sofala from 1500 onwards. The then secretary to the Governor-General, unwilling to incur the trouble and labour involved in the transfer of all these archives, and lacking apparently the historical sense, reported them to consist merely of out-of-date routine files, and as such, without any sifting, they were all burnt as useless rubbish. Although a great number of valuable records are believed to have thus been destroyed, fortunately some had been already moved before the edict went forth, and consequently an outline of events preserved for the historian.

When, about the beginning of the sixteenth century, the Portuguese first visited the coast near Delagoa Bay, Bantu tribes were found in settled occupation, although Arab records of some five hundred years earlier state that the southward migration had then barely reached the Zambezi. The arrival of the Europeans seems to have synchronized with a period of peace among the tribes, and the visitors were hospitably received. The east coast people were then divided into two distinct types, the chiefs, and ruling class generally, being tall of stature, with light complexions, and clear-cut features, while the hewers of wood and drawers of water were short, prognathous, and very dark in colour. Names of chiefs ruling during that period survive in place-names such as Lebombo and Mpfumu, down to the present day.

Between 1500 and 1540 arose one of the periodical eras of unrest which, in Africa, have always alternated with long intervals of comparative calm. Invading hordes of Makalanga, said to have come from the Zambezi, and under the chief Tembe, swept down the coast and conquered all the country as far as the present Zululand border. This invasion set the tribes over all this part of south-east Africa in motion. Movements and counter-movements took place, and when things

had once more settled down, there appeared a totally new arrangement of the peoples.

At the date when Low-Veld history opens—that is, a little over a hundred years ago—it is agreed that for a long time nothing had occurred to disturb the serenity of village life, that the country was better watered than it is to-day, and that it maintained a large population, rich, outside the fly areas, in cattle and small stock. Basutos, no doubt an overflow from the plateau country to the west, occupied the slopes of the Drakensberg, and were spread over the fertile lands lying immediately beneath the foothills. Judging by the traces of their presence which are still to be found, they must have been superior in the agricultural art to their immediate descendants. The rest of the country, from St. Lucia Bay in the south to the Limpopo River in the north, and between the foothills and the sea, was the home of tribes, which, though independent of one another, were closely akin in language and customs. Of the latter, circumcision, with its attendant rites, was one of the principal.

There was a considerable number of these tribes, or rather clans, and they included, among others, the Ronga near the coast, Nondwane, Nkuna, Nwalungu, Hlangane, Hlabi, Hlengwe, Khosa and Loyi. At a later date their Zulu conquerors applied the contemptuous term *ba-Thonga* indiscriminately to the peoples whose territories they had overrun. Accordingly, all these Low-Veld clans of nearly allied languages and customs, having become more or less welded together under Zulu suzerainty, are now, for convenience, generally known by the name thus bestowed upon them, and indeed themselves admit, without welcoming, its meaning.

Though of lesser physique, the Thonga come of the same ancestral stock as the natives of Swaziland, Zululand, Natal, and the eastern Cape Province, and doubtless belong to the same, or only a little later period of migration from the north. They have not, however, adopted the bee-hive type of hut common to the more southern tribes, but use the conical-roofed, reed-walled style familiar throughout central Africa. The hoe is still the only agricultural implement used, and was

formerly, in the absence of cattle, employed as currency. In war the men carried small ox-hide shields, spears of medium length, mainly used for throwing, knobkerries, battle-axes, and sometimes bows and arrows. They had little knowledge of battle tactics, and usually the contending forces formed up facing one another in straight lines, a few killed on one side or the other being sufficient to decide the day, and to satisfy honour.

From such relatively peaceful conditions the Low-Veld was rudely awakened by the events which, early in the nineteenth century, shook South Africa nearly throughout its length had breadth. The conquests of Dingiswayo, and later of Tshaka, the Zulu Napoleon, had welded the tribes of Zululand into one great fighting machine, thoroughly organized and disciplined. The old happy-go-lucky settlement of tribal disputes by means of nearly bloodless combats disappeared. The Zulu armies were divided into regiments and companies on the European model ; the throwing spear was discarded, and its place taken by a short stabbing assagai, while the size of the shield was so enlarged that during the fight it could cover a man's whole body. Moreover, so stern was the system of discipline introduced by Tshaka that not only were all men who had not, in the opinion of their immediate commander, shown the requisite degree of courage in battle immediately put to death, but even whole regiments which had happened to fail in the objective set them, were often, on the conclusion of a campaign, massacred to a man.

The battle tactics were an innovation in African warfare, and were eminently suited to the mentality of the soldiers who carried them out. The *impi*, or regiment, advanced slowly in dense company masses, the warriors crouching low behind their shields, while the war-chant, growled out by their deep voices, was like the rumbling of thunder. Individuals continually rushed out in front of the line, leaping, crouching, clashing weapons against shields, and as suddenly disappeared back into the ranks. When nearing the enemy, the order was given to form the *amapondo*, or horns, whereupon the wing units extended with incredible rapidity round the

enemy's flanks, so as completely to encircle him. When the tips of the opposing horns had come together in his rear, the circle so formed was called the *umkhumbi*, and when it was completely joined, the whole mass, with a united roar, charged home from every side. All fighting was done at close quarters, and with the short stabbing assagai, no missile weapons of any kind being allowed. Reserves were provided, ready to be thrown in at any point where the attack might seem to be wavering. No quarter was given in battle, and in warfare against people foreign in language and customs, the whole population was completely wiped out after the victory. Against such a system of combined discipline and tactics, no opposition that could be offered was of the slightest avail, and all the attacked tribes gave way like paper.

About the year 1823, a Zulu general named Manukosi, deserted with his followers from Tshaka's rule. Manukosi was chief of the people known as ba-Ngoni, who lived in the low-country east of the Lebombo Hills, along the Pongola and Maputa Rivers in the extreme north of Zululand. The force which thus broke away is said to have consisted of a complete regiment of the Zulu army—probably from four to five thousand men. The left flank of the *impi* swept through the Transvaal Low-Veld, where of course the unorganized clans could offer no opposition of any account to such formidable invaders. Manukosi ordered that where no resistance was met with the lives of the inhabitants were to be spared on condition that the men pierced their ears according to the Zulu custom, and acknowledged him as their chief. All villages were burned, and the stock carried off, partly perhaps to make more difficult the inevitable pursuit by Tshaka's forces.

The ba-Ngoni halted on the Limpopo River at Bilini, about Lat. 23° S., where it seemed that a sufficient distance had been placed between themselves and the dreaded tyrant. The latter lost no time in sending a chief named Songandaba with an *impi*, in pursuit of Manukosi, but, instead of fighting with one another, the two joined forces. On hearing this news,

Tshaka collected a large army, and placing it under a trusty lieutenant named Naba, dispatched it with orders to destroy the fugitives to the last man. This force marched along much the same route taken by Manukosi and his legion some years before. But they found the whole country laid waste, the stock driven off, no grain, and the few inhabitants all fled to the bush. The ba-Ngoni retired northwards from Bilini, but the Zulu army never reached that place. It suffered so much from hunger that the men were reduced to eating their leathern sandals and shields ; moreover a great number, including some of the principal leaders, fell sick and died (perhaps of fever), which induced the rumour that the enemy had poisoned the water. This completed the demoralization of the troops, already greatly reduced by starvation and disease. When they reached the Olifants River they became so seized by panic that the whole army broke and fled homewards, a disorderly mob, without having accomplished anything. On their arrival once more in Zululand, the fugitives were greeted with the news that Tshaka had been assassinated by his brother Dingane, who now reigned in his stead, and they consequently escaped the fate which otherwise would no doubt have been theirs.

Their common enemy disposed of, the two chiefs, Manukosi and Songandaba, quarrelled, and after a fight in which Songandaba was worsted, he and his followers departed still further north, crossed the Zambezi, and eventually settled to the west of Lake Nyasa, where their descendants became the well-known Angoni tribe. Manukosi now assumed the name of Sotshangane. According to some authorities, this had been the name of a former chief, the son of Gaza, who had ruled in the area usurped by the Zulus. But *gaza* is the Zulu word for blood, and it may be that Gazaland, as the country in question was thenceforth known, derived its name from the blood shed there. The conquered clans who had submitted, and whose men were now enrolled as separate units of the fighting forces, were called ba-Tshangane, while the Zulus, ruling as a superior race, continued to be known as ba-Ngoni.

To be " um'-Tshangane " was considered an honour, and

these Thonga clans within the circle of Zulu rule began to conceive a contempt for those still without it. Accordingly, it gradually became the ambition of every Thonga to be considered a Tshangane, and in later years, when going to work for the whites, so universally did they assume the title, that all east coast natives, even people such as the ba-Tshope, who have only distant blood connexion with the Thongas, are now indiscriminately spoken of as " Shangaans." The Hlangane clan, resident on both sides of the Lebombo, along the Sabi River, were too far away to be under either the direct control, or the protection, of their new masters, and, while they escaped military service, they suffered the fate, in future wars, of being ground between the mill-stones of rival factions.

Discovering his new subjects to be possessed of military qualities by no means despicable, Manukosi employed them in all his expeditions, using them in advance of the Zulu *impis*, much as the Romans were accustomed to push their foreign auxiliaries in front of the legions, and those on whom this honourable duty fell, were named *amabuyandhlela*, or " those who clear the way." While fleeing from Tshaka's pursuing army, Manukosi had penetrated far into Mashonaland, and had even established a temporary capital there ; but later, this country became subject to the ama-Ndebele, another tribe of refugee Zulus, who, driven by the emigrant Boers from the Transvaal, where they first settled, had finally established themselves near the Zambezi. Up to about 1840 the ba-Ngoni raided the Mashonas ; but after that date their boundary with the ama-Ndebele was settled by agreement, and the two tribes never came into conflict with one another. At a later period, when Lobengula was reigning in Matabeleland, and Gungunyane in the Gaza country, an *impi* of the first-mentioned king attacked and killed some Thongas on the Pafuri River. Protests were made by Gungunyane, and the spoil was returned to him with an apology, and an undertaking that in future the Matabele (ama-Ndebele) would not interfere with the " cattle " of the ba-Ngoni. Manukosi conquered as far as the Zambezi on the north-east, where some of his people established a colony, and on the east his *impis* ravaged all the coast lands,

in 1833 and 1834 destroying the Portuguese garrisons at Inhambane and Delagoa Bay respectively.

When Manukosi considered himself to be securely established on the throne of Gazaland, in imitation of Tshaka's methods, he proceeded to kill off a number of his people. Many of the ba-Tshangane, including the majority of the Nwalungu, Loyi, and Nkuna clans, fled across the Lebombo into the present Transvaal, where they settled down in isolated communities. With this exception, Manukosi seems to have ruled free from any domestic disturbance, until his death in 1856. During his reign occurred the Great Boer Trek from the Cape Colony to the Transvaal; but the only *voortrekkers* recorded to have visited the Low-Veld were the parties under Louis Trigard and Van Rensburg, in 1836, consisting of about twenty married men with a large number of women and children. Separating in the Zoutspansberg, the two leaders conducted their parties by different routes towards Delagoa Bay. Van Rensburg and his people, who started the earlier, are believed to have been massacred by natives in the neighbourhood of the Pafuri River, probably with the connivance of the paramount Bangoni, if not actually by one of their *impis*. At any rate, thirty years later, the Swazis, during one of their northern raids, recovered from the Amagwamba, a white man and woman who lived as natives, and had no recollection of having ever done otherwise, nor of having ever seen anyone else of their own colour. These two persons were believed to be survivors of Van Rensburg's party, and to have been infants when disaster befell it. Louis Trigard and the remnants of his followers, after great hardships, reached Delagoa Bay in 1838. Most of them had fallen victims to malaria and dysentery, and all the transport animals had succumbed to the tsetse-fly. Louis Trigard himself died soon after having reached the coast, and only a small section of the wanderers—three women, three youths and nineteen children—eventually reached Durban by sea.

Manukosi left two sons, each of whom claimed the chieftainship. Umzila was the elder, but Mawewe, being the first-born of the chief wife, was by Zulu custom the rightful heir,

and so was duly installed as his father's successor. Umzila, with a small following, left Gazaland, and was for a time a refugee in Spelonken. Mawewe, however, soon alienated the people by his cruelties and oppression, and the breaking-point was reached when he proposed to kill off all males who had become too old to fight. Umzila was recalled, and found himself at the head of a strong faction. He defeated Mawewe, who sought refuge with the ba-Ngwana, or Swazis. This tribe, formerly known as ba-Hahlakazi, was settled in the mountainous country to the north of Zululand.

With a military system modelled on that of their southern neighbours and cousins, the Swazis, while rendering a nominal fealty to Tshaka, had succeeded, through their warlike reputation, and the nature of their country, in maintaining their independence. To these people had fled Tshaka's successor Dingane after his final defeat by Panda, and his allies the emigrant Boers, and by them he is said to have been put to death. The chief of the tribe at the time of the Gazaland civil war was Umswazi, known in his youth as Umngwane, and these alternative names have distinguished the tribe ever since. Umswazi agreed to assist Mawewe in his effort to regain power, and detailed three divisions of his army for the purpose. One of these marched close under the foot-hills of the Drakensberg ; a second one crossed the Sabi just west of the Lebombo Hills ; while the third kept near the coast in Portuguese Territory. The army thus swept most of the country between the mountains and the sea, and on their march put all that lay in their path to fire and sword. The Basuto settlements under the foot-hills were largely destroyed ; while the ba-Hlangane, and the Tshangane refugees were hunted like wild beasts, whenever encountered.

Meantime Umzila, following the example of his father when threatened by Tshaka, had withdrawn towards the north ; and, like the Zulus before them, the Swazis did not get beyond the formidable barrier of the Olifants River. Soon after their retreat, some ba-Ngoni adherents of Mawewe, known as ama-Xoxosi, swept down from the north through the Low-Veld, completing the destruction of the ba-Suto

between the Sabi and Crocodile Rivers. They passed on to Swaziland, where they handed over the cattle and children captured by them, to Mawewe. They remained in Swaziland until the following year, resting, and repairing their weapons. When winter again came round, they marched back to the north, across the devastated Low-Veld, killing everyone they could find. Shortly afterwards these ama-Xoxosi, who appear to have been little better than a robber band, broke up, and are not heard of again.

The fighting between Umzila and Mawewe went on until 1862, the Swazis assisting the latter, and each winter so ravaging the Low-Veld, as far as the Olifants River, that at last it became a complete desert, inhabited only by wild animals. The Swazis claimed the country as theirs by right of conquest, and first a chief named Umhlokohla, and later another called Sebuza, were in command of the *impis* operating in that region. There is but a confused record of the horrors of the time. The wretched ba-Hlangane, stripped of all their possessions, were accustomed to spend the winters hiding in caves and in the thicker bush, subsisting, as best they might, on wild fruits, and such animals as they could kill. In the summer, feeling comparatively safe, they would creep back to their burnt villages, and sow a little grain, with a faint hope that they might have time to reap it before the enemy's return. From bitter experience they discovered that their best chance of escape lay in abandoning all idea of village life, and in building rough grass shelters, widely separated, where single families could live together, ready to flee at the first hint of danger. This custom of dwelling in isolated huts, erected in out-of-the-way places, became so deeply rooted that the ba-Hlangane followed it from preference until the beginning of the present century. Their mode of life also turned the members of the clan into very expert hunters. It is related how small marauding parties of Swazis arriving earlier in the season than expected, and finding the villagers still intent upon the harvest, would conceal themselves, and in the early mornings imitate the cries of an animal being killed by a lion, or the whinnying of zebras, when some people would be sure to rush out in hopes

of getting meat, and thus be easily ambushed and killed. One raiding party, under a man named Sihanti, destroyed all the kraals near the Manzemntondo River, just west of the Lebombo Hills : the head *induna* was slain with most of his people ; but the survivors crept back to bury him, and his grave may still be seen, a large broken jar, placed there over sixty years ago, still lying above it.

Kumane-ka-Mure, an old *induna* of the ba-Hlangane, who died a few years ago, once gave the writer a vivid account of one of these raids. At the time, he said, he was a youth, but not as yet of marriageable age, and as he was probably between seventy-five and eighty when he died in 1922, it would place the date of the occurrence at about 1860, or possibly a little earlier. A prominent sub-chief of the ba-Hlangane, named Umkankane, then lived with his following on the Sabi River, just above the present site of the Sabi Bridge. During these unhappy days predatory bands of Basutos sometimes descended from the mountains to take a hand in the general disturbance, and in consequence of an attack or threatened attack from this quarter, Umkankane had moved his village a few miles further down the river, where the dense surrounding bush gave better hope of concealment. Kumane said that he was then living alone with his mother, a widow, and that they had built a couple of huts a little away from the others, and more or less concealed by the river reeds.

One morning, in winter, the Swazis fell upon the unfortunate settlement. The scene may be pictured. It is early dawn and the hush of that hour is over everything : the birds and beasts of the night are silent, and the francolins have hardly yet begun their early calls. The people are all in their huts, for the winter mornings are chilly, and they dislike coming out before the sun. A woman appears, blowing on a fire-stick, and, apparently intent on some culinary task, moves sleepily towards the grey embers of the cooking-fire. Suddenly a dog barks, and there is a stir of voices within the huts. The woman gives a shrill cry of alarm and bounds towards the river. Next instant—pandemonium. A rush of leaping, yelling, savage figures ; tossing plumes ; cruel eyes

glaring above ox-hide shields, and the first rays of the morning sun glinting on the blades of poised spears. The screams of women and children mingle with the fierce shouts and the piercing whistles of the attackers, who hiss loudly as they drive home their assagais; blazing huts, a swirl of running and leaping forms—pursuers and pursued. A few frantic fugitives vainly seek concealment in the dense reeds, only to be dragged out and clubbed or speared to death; three or four minutes and all is over.

On the first alarm Kumane and his mother made straight for the river, crossed, and fled through the bush on the north bank. When they paused for a moment to glance back, all was already silent, and the smoke of the burning village drifting gently away to the south, alone gave token of the tragedy just enacted. The pair then made their way northwards with all speed, only halting to rest when they had reached the kopjes of the Manzendlovu River, fourteen miles away. Here the woman lay down exhausted, and as she was apparently quite unable to travel further, her son continued his flight, leaving her to die or revive as fate might decide. He made his way to the Manzemntondo River, where, finding a few refugees of his own clan, he remained with them, eventually becoming a headman of some importance, and living, as already remarked, to a ripe old age. He never saw either his mother or a single inhabitant of his old village again.

"And do you mean to say, Kumane, that you really abandoned your mother in the bush like that?"

"Certainly," with a laugh, "why not? Of course I was very sorry, but she was old, and could not have lived much longer, in any case. If I had stayed with her the Swazis would have caught us perhaps, and then two people would have died instead of only one!"

Kumane was not exceptionally callous by nature; he was, in fact, rather a kindly old man; but in his whole life, he had apparently never felt the smallest remorse for having thus shamelessly abandoned his own mother to death from wild beasts or starvation. Among the Bantu generally the life of an old person is not reckoned of much value; it counts for

nothing in the future, and is no longer an asset to the existence of the community. The time was one of constant tragedy and terror, and the Hlangane people lived so like hunted creatures that their moral may well have sunk to the level of that of a troop of impala antelopes pursued by wild dogs.

Early in these troubles a very remarkable figure appeared in the Low-Veld in the person of a Portuguese named João Albassini, who was not only the first white man to take up his residence there, but has left his name and record more deeply engraved on Low-Veld history than any other European since his time. Even now, every native knows all about "Juwawa," as he was called. Albassini arrived from the coast as a trader, and taking up his residence on the Sabi River near the passage known as Albassini's, and later as Mambatine's Drift, bartered for ivory the first European goods which had been seen in the country. He built himself a substantial brick house, the remains of which are still extant, planted orchards and gardens, and collected large herds of cattle. In those days the country was full of elephants, and maintaining a large number of hunters, whom he armed with guns, he soon acquired by the chase, as well as by ordinary trade, great stores of tusks, which he disposed of at Delagoa Bay.

His fame quickly spread, and he gradually collected round him a large number of refugees, Thongas and Basutos, over whom he became the chief according to native law, the guns with which his followers were armed securing him immunity amid the raiding and counter-raiding which was desolating the surrounding country. As he became stronger he began to make war on his own account, and at last, after some ten years spent on the Sabi, emigrated to the Spelonken with his followers, where, after a good deal of fighting with various tribes, he defeated the people of Siluvane, and settled in their country. The name of one of the peaks of Pretorius Kop (M'nungu) commemorates that of the headman who was accustomed to live there in charge of Juwawa's cattle.

The six years of civil war ended in 1862, after a great battle on the lower Sabi River, in which Mawewe was decisively defeated by Umzila, assisted by the ba-Ronga, to whom the

Portuguese had supplied three thousand muskets. Mawewe died about 1886. The descendants of his followers, known as ama-Ndawo, still reside near the Crocodile and Komati Rivers. After his victory, Umzila continued to reign in peace until his death in 1884, when he was succeeded by his son Gungunyane. The pure-bred ba-Ngoni had greatly decreased in numbers through war and emigration, and were at this time probably under a thousand in number ; but they still maintained their undisputed sway as an aristocracy of foreign blood over numerous subject peoples. Raids of the usual Zulu character continued, usually against tribes like the ba-Tshope living to the east of Gazaland.

The ba-Hlangane were now a wild people living in the bush, and subsisting mainly by hunting. They went in fear of all their neighbours, and their chief, Bondwini, was wont to submit his cases for trial either to the ba-Ngoni or to some Suto chief. They still had good reasons for their fears. Notwithstanding the fact that no pretext for warfare existed, sporadic Swazi raids into the Low-Veld and the adjoining Lourenço Marquez Province persisted up to about 1870, when the appearance on the edge of the Low-Veld of white men from the west at length put an end to them. The extermination of the High-Veld game was calling the hunters to new fields, and the Low-Veld, now practically abandoned to its natural denizens, was a true hunters' paradise. The names, among others, of Glynn, the Sanderson brothers, Abel Erasmus, and David Schoemann are prominent at this period. Winter trekking with stock for grazing had not yet commenced, and the settlers lived on the eastern slopes of the mountains like the Sandersons, or near Pilgrim's Rest and Lydenburg, like Glynn and Erasmus, coming down with their wagons to shoot animals for biltong and hides during the healthy months.

The Lydenburg goldfields were discovered, and a transport road, which soon became a busy highway, was made through the Low-Veld from that place to Delagoa Bay. A certain Count Nelmapius had received a contract from the Transvaal Government to make the road, and, as his price, was given certain farms along the route—Pretorius Kop, Joubert's Hoop

and Ludwigslust. The romance of this old wagon road has been delightfully described in Sir Percy Fitzpatrick's well-known "Jock of the Bushveld," and there are few other works in which the reader gets so thorough a conception of contemporary conditions in the Low-Veld.

The Swazis still claimed a certain suzerainty over the local Transvaal natives, and many men of the tribe had settled and intermarried with the people along the Crocodile River and near Komati Poort. There was occasional minor friction between the Swazi chiefs and the Transvaal white authorities. The arrest of Matafene, a headman of the Swazi chief Sebuza, was ordered, and he fled into the Low-Veld. Riding a horse and carrying a considerable sum in gold, he arrived at the kraal of one Nhlesiu, a Tshangane headman, between Pretorius Kop and the Crocodile River, and asked his host to guide him further. Having slept at the kraal, the pair set forth next morning. Matafene was never seen again, and it was an open secret that Nhlesiu murdered him and took the money, but he buried it in so secret a place that, after his death, his sons, with whom he was on bad terms, were quite unable to locate it, and it remains and is likely to remain among the many similar buried treasures which Africa conceals.

In 1878 during the Sekukuni War, there was some raiding by local Basutos, who, though they had been driven from the low country, had never been dislodged from their mountain fastnesses either by Zulus or by Swazis. Some storekeepers were murdered, including an Englishman who lived at Pretorius Kop. The Boer farmers began to come down in increasing numbers every winter with wagons, horses, cattle and sheep, to graze their stock and shoot game, and, except in the tsetse-fly areas, they camped everywhere right up to the Lebombo.

In 1894–96, the last of the great native wars took place. The Portuguese, who had long suffered from the raiding, by the Gazaland chief, of tribes nominally under their protection, had been seeking an excuse for curbing his ambitions, and found it in a dispute which arose between two Thonga chiefs living in Portuguese Territory. The Portuguese supported the claims of the sub-chief Umbvesha, while Gungunyane

was behind the feudal superior Mahazulu. Mahazulu at first overran the Lourenço Marquez Province, and his *impis* even came right up to the outskirts of the town itself; only retiring from this position, it is said, when a British warship in the Bay threatened to fire upon them.

Portuguese reinforcements from overseas were soon on the track of the enemy. At Marakwene, on the Inkomati River, the rebels, under Mahazulu, attacked them at dawn, while still in camp, and nearly scored a success; but the Portuguese, standing firm, eventually defeated and drove them off with great loss. The rebels then retired north into Gazaland, whither the Portuguese, under Captain Frere d'Andrade, pursued them, and another engagement took place at Magule, in that territory. At this fight were present several Tshangane regiments of Gungunyane's army; but, though their numbers and discipline might have turned the scale, they had been ordered by the king not to fight against white soldiers; and so they merely watched the battle from a distance, and when its result was no longer in doubt, quietly withdrew. The Thonga rebels charged the square of white troops very bravely, many warriors getting close up to the bayonets; but suffering severely, and finding themselves unsupported by the Gaza contingent, they finally broke and fled.

After this victory the Portuguese demanded that Gungunyane should hand over to them the refugee rebels to whom he had given shelter, and on his refusing to do so, an advance was planned upon his capital. Meantime food supplies ran short in Gungunyane's army, which had now been mobilized for a considerable time, and some delay taking place before the Portuguese felt strong enough to advance to what they anticipated would prove the most serious fighting of the campaign, the Tshangane regiments, who at heart had no love for their Zulu masters, deserted, and went back to their homes. The force at Gungunyane's disposal was thus reduced from about thirty thousand men to his personal bodyguard of ba-Ngoni, with a few loyal Tshangane auxiliaries. The former, though greatly outnumbered, gallantly attacked the Portuguese, but were driven off with the loss of half their strength, and the

royal kraal was taken and burned. Gungunyane fled to Tshayimiti. A week or two later, he was surprised and taken prisoner by Captain d'Albuquerque, and brought a prisoner to Lourenço Marquez. Thence he was deported to one of the Madeira group of islands, and died there in 1897. Thus disappeared the last of the Zulu military despotisms which originated with Tshaka.

The Portuguese were determined to arrest and deport all the remaining members of the ba-Ngoni tribe, as well as such Tshangane leaders as had taken a prominent part in the war. Accordingly all the former that remained—not more than a few hundreds—emigrated to the Transvaal, where they found new homes under the foothills of the Drakensberg, between the Sabi and Olifants Rivers.

Here, until 1926, lived Soniya, Gungunyane's "great" wife, with a small retinue of *indunas*, female relatives, and slave girls. The old lady was popularly supposed to have brought with her a large native jar, filled with diamonds given to the late king, her husband, by some of his subjects who had succeeded in stealing and smuggling them at various times from the Kimberley Mine. A good many years ago, certain white men succeeded in buying from her, for a trifle, some of these stones. Unfortunately they were recognized as being of Kimberley origin, and the men were consequently arrested for illicit diamond buying. Although no action was taken against Soniya, she got such a fright that nothing would afterwards induce her to admit possession of diamonds, or indeed of valuables of any kind whatever.

CHAPTER XI

HISTORY (*Continued*)

Stabilization of the tribes—Attempted removal from Low-Veld by Transvaal Government—Railway construction—Early white settlers and traders—Survey of farms—The South African War—The Game Reserve—Later white settlement—The Great War

With the conclusion of the Gungunyane war, in 1896, self-made native history practically ceased. Scattered fragments of the different tribes and clans settled down peacefully side by side, with little to disturb the tranquillity of life, beyond the payment of the annual poll tax, and prohibitions regarding the destruction of wild life. Marriages between members of tribes traditionally hostile became far from uncommon. The influence of the chiefs, benevolently though it was regarded by the white authorities, grew ever feebler, and tribal distinctions and customs slowly began to die.

A large number of the ba-Tshangane followed their prescribed leaders over the border in 1896, and settled wherever they could find suitable places in the Low-Veld. In the quarter of a century which had elapsed since the cessation of the Swazi raids, the Hlangane clan had multiplied, and occupied the flats under the Lebombo Hills in considerable numbers. Generally speaking the distribution of clans remained constant after the end of the Gungunyane war. There were Tshangane and Swazi, mingled with some Hlangane settlements, along the Komati and Crocodile Rivers to Kaapmuiden. Among the Berg foothills, between the Crocodile and Sabi Rivers, were the ama-Mbayi, of mixed Swazi and Suto blood, while the remnant of the ba-Ngoni were found some distance north of the Sabi immediately under the foothills. The rest of the country, northwards to the

Letaba, was occupied by fragments of Tshangane clans, such as Nwalungu and Loyi. Thence to the Limpopo, the eastern portion of the Low-Veld was very sparsely inhabited ; but the western part, across the Pafuri, held a large population consisting of ba-Thonga and ba-Venda, the latter an exotic people, believed to have migrated from the Congo about two hundred years ago.

The hereditary chiefs still continued to hold nominal sway. Tulamahashi, son of Gungunyane, was brought into the Transvaal as a child in 1896, and when he became a man was made paramount chief of all the ba-Ngoni and ba-Tshangane. After the conclusion of the Great War, the rightful heir, Buyisonto, then about forty years old, who had been a prisoner in Portugal, and had been sent out in some menial capacity to Angola, escaped from the Portuguese, made his way to the Transvaal, where he arrived in 1922, and was at once acknowledged by Tulamahashi and the ba-Ngoni *indunas* as their chief.

For some years preceding the outbreak of the Anglo-Boer War of 1899, Abel Erasmus had been the Native Commissioner representing the Transvaal Government in the Low-Veld, and his position with regard to the natives was that of an autocrat. Every winter he would come down from his farm near Lydenburg, to hunt game, collect taxes, and generally administer the law. But with the increase of the population, he began to find accumulating difficulties in connexion with all these matters. A Transvaal-Portuguese boundary commission had cut the Hlangane clan in two ; the people lived, consequently, on both sides of the border, and they soon realized that whereas the Transvaal Government collected its tax in winter, and left the Low-Veld severely alone during the fever season, the Portuguese authorities on the other hand, made summer their revenue-gathering period. They, therefore, found it easy to evade payment to either, by the simple expedient of planting and reaping their crops in the Transvaal during the summer and autumn, transferring themselves with all their belongings to Portuguese Territory for the winter, and returning to the Transvaal each spring.

The Boer hunters also complained that every year they

found the game less in number owing to the persecution to which it was subjected by the natives between September and May, and that, in consequence, their profit in biltong and hides was likely soon to vanish. Something had to be done, and the expedient was devised of transporting all Low-Veld natives, south of the Ngwanetsi River, to the High-Veld, where they were to be distributed for work on various farms. An extensive round-up was therefore undertaken, and all men, women and children who had not already managed to escape over the border were, together with such stock as they possessed, marched away under a guard of native police, and duly installed in the new abodes selected for them. Unfortunately for the success of the device, it proved one thing to catch the natives, and another to keep them when caught, and, within a few months, practically all were back again, either in the Low-Veld or in Portuguese territory.

The Pretoria-Delagoa Bay Railway line was finished in 1889; its career inaugurated by some disputes with the Portuguese authorities. Police sought to prevent the departure of the first train from Lourenço Marquez, and some revolver shots—fortunately harmless—were even exchanged between them and the driver. This small trouble was, however, quickly adjusted, and matters have run smoothly ever since. Portuguese officials are now in charge of the trains as far as Komati Poort, where they hand over control to those of the South African Railways.

A few years later, the Selati Railway was commenced. It has had a chequered history. In 1892, some persons with interests in the north-eastern Transvaal desired to open up the Selati goldfields—afterwards proved to be of small value—and a concession for constructing a railway thereto was granted. Two years of feverish activity followed. Great numbers of whites and natives, of whom many died, were employed in construction work; a vast amount of liquor was consumed; thousands of wild animals were killed for food and profit; and in the end, after seventy miles of line had been laid, the chief executive contractors, Westwood and Winby, went bankrupt, and work suddenly ceased. The native workmen threw down their tools, and returned to their

homes; the white sub-contractors sought new fields of enterprise. Something like a million sterling had been subscribed, and the shareholders lost all their money.

For the next sixteen years the line lay derelict. Quantities of valuable material, scattered about the neighbouring veld, offered itself to anyone who would be at the trouble of removing it, and it is a proof of the then wild and desolate nature of the country that, up to 1909, a large part of this material, including thousands of excellent picks, shovels, and iron wheelbarrows, was still lying where it had been left. The platelayers' cottages, however, which had been built at intervals along the line, had one by one succumbed to grass fires.

In 1909 came Union, and the Transvaal Government, no doubt anxious to spend on local matters their very considerable surplus of revenue, before it could vanish down the hungry maw of a Treasury representative also of the other Provinces, decided, as part of its programme, to continue the Selati Railway. The contract was this time given to the well-known firm of Pauling and Co., who completed the work without any of the orgies and loss of life attendant on the first construction, and in 1912 through communication was opened with Tzaneen. Until 1925 one train in a week served to carry all the traffic of the line, and was in fact so much in excess of requirements, that at one time it was contemplated to reduce the service to one mixed train per fortnight, and even to remove all the rails south of the Olifants River. However, in 1925 things began to improve a little, and in that year a service of two, increased later to three trains per week was effected. Fortnightly specials were also run during the dry season, to enable tourists to see the wild animals in the Game Reserve, which, as in Kenya, betray no alarm at the passing of the trains.

Until the invasion of the Low-Veld by railways there were practically no permanent white residents below the Berg; but when Komati Poort was made the frontier station on the Transvaal side of the Delagoa Bay Line, railway officials and police were stationed there, and a few store-keepers found profit in native trade. During the first Selati Railway construction, Komati Poort became quite a busy centre. Native trading

stores were built along the line's course, while others were erected in suitable places under the Berg, as far even as the Limpopo. Recruiters of native labour, sometimes employed by Johannesburg syndicates, but oftener free-lances, began to reside permanently in the country. A type of white man peculiar to the region gradually evolved, one who combined kaffir store-keeping with a little transport riding, and who—sometimes forcibly—recruited natives for the Rand Mines, whenever opportunity offered. Among these Low-Velders were found few of the older white population of the Transvaal, among whom the dread of malarial fever was an inheritance passed down from the days of Louis Trigard, and other early adventurers in the country. Most of the residents were men from oversea—British, German, French, Italian, and Greek—and they led a free, careless life, untrammelled by laws or civilized customs. At the same time more farmers, both Dutch and British, began to live on the eastern slopes of the Berg, or among the higher foothills, using the Low-Veld, in common with the ordinary winter trekkers, as a hunting ground during the healthy season.

During that period a few Europeans, of nationalities other than British and Dutch, were accustomed, with the connivance of the people at whose villages they resided, to make a livelihood by waylaying and robbing Portuguese natives returning with their earnings from the Johannesburg mines. These men could not compare in initiative and daring with the " Lebombo Pirates "—du Pont, McNab, Constable, and others —so notorious in Swaziland during the reign of Umbandine, but were a mean and cowardly band, who, living like natives, were as much despised by the latter as they were by white men. Nevertheless, owing to the readiness they showed in using their rifles on the smallest excuse, they contrived to make themselves feared, and to some extent obeyed by the natives.

A native who had worked for one of them gave the writer an outline of their methods. Intelligence having been received of the approach of a gang returning from the mines, he and his master would go to some point on the path by which the party was expected. The native would then sit down somewhere

close at hand, while the white man, rifle in hand, would take cover behind a convenient tree. On the arrival of the long line of "boys," the former, stepping forward, would order them to halt, and lay their possessions on the ground. If they objected, he would just point to where, at a safe distance, his master could be seen with pointed rifle. The frightened natives would then be told to run, and as they did so, a few bullets, sent after them, would serve to quicken their pace. The victims were always Portuguese boys, for the bandits were wise enough to remain on good terms with, and even to give a share of their spoil to, the people among whom they lived.

During the 'nineties the country between the Sabi and Olifants Rivers, from the eastern slopes of the Drakensberg to the Lebombo Hills, was surveyed into farms, each of about eight thousand acres. The area being altogether some five thousand square miles, the work, which was under the able direction of Mr. W. H. Gilfillan, afterwards Surveyor-General of the Transvaal, occupied several successive winters. Stone beacons were set up to mark the four corners of each new farm, and a fairly reliable map of the country was, for the first time, available. Not the least part of the work must have been the selection of names for each of the hundreds of farms surveyed, and the towns, provinces, and countries of the world were freely drawn upon for the purpose.

These new farms were first allocated by Government to various burghers of the republic. Since, however, the country was considered of value only as a hunting ground, and the burghers had at that time free use of the whole area for the pursuit of game, and moreover had no desire to live permanently in the fever belt, most of them were glad to dispose of their property. Various Johannesburg land companies, hoping to discover a new field for mineral exploitation, were therefore able to acquire the farms at comparatively trifling cost.

But the expectation of finding any payable propositions proved abortive, and the farms lay idle and unprofitable to their owners until after the South African War. Upon its conclusion, some of the companies placed resident agents in those thickly populated portions of their property which

lay immediately under the Berg, and for some years drew a considerable revenue from what is known as " kaffir farming." This term implies the exaction of rent payments from natives living on controlled farms, without the owner undertaking any special obligation in return. The Native Land Act of 1913, though it did not interfere with old contracts in this respect, was nevertheless designed to stop the practice in future, by enacting that new tenants should pay no rent, and that those on farms in white occupation should, in lieu, provide ninety days' free labour per year for the owners. Natives already living upon private farms were prohibited from moving on to Government land, where the old rent-paying basis was still in vogue ; and, since the companies had naturally no use on their undeveloped farms for new squatters from whom rent was no longer obtainable, and for whom there was at present no work, the general tendency of the Act was to induce increased stability of population.

A movement arose favouring the establishment, in the low-veld of the Barberton and Pilgrim's Rest Districts, of native locations or reserves on the lines of those already in being north of the Olifants River, where, within a certain prescribed area, natives, more or less under the tribal system, possessed full rights of ownership. The desire on the part of the Union Government to adopt some really satisfactory and permanent native policy, suitable to the whole of South Africa, has year by year become more apparent ; and though none of the experiments so far tried have proved entirely satisfactory, since the wish is really present, there is some hope that the native land question, perhaps the most serious and vital one which faces the white population of South Africa, may some day find satisfactory solution.

The South African War did not directly affect the Low-Veld until the latter part of 1900, when, the British forces having reached Komati Poort by way of the Pretoria-Delagoa Bay Railway line, the Republican commandos retired north along the disused Selati track, which became blocked with abandoned rolling stock all the way from Komati Poort to the bridge across the Crocodile River. Subsequently the Boers, except on one occasion, undertook no military operations in the Low-Veld,

which, for the rest of the war, was mainly occupied by an irregular corps known, after the name of its commander, as Steinaecker's Horse. This leader established a chain of small posts along the Portuguese border from Swaziland to the Letaba River ; but otherwise, excluding a rather ignominious expedition into the former country, contented himself with an easy garrison life in Komati Poort.

One officer of the corps, however, possessed the military instinct which was lacking in his superior. Captain F. Francis, a member of a Natal family, had come originally to the Low-Veld at the time of the Selati Railway construction, in 1892. Thenceforward he had spent most of his time in the country, and, with his brother, killed at the relief of Mafeking, had made for himself a reputation as one of the few hunters of the day who preferred the pursuit of the lion to that of harmless antelopes. Chafing at the inactivity of a peaceful life in Komati Poort, Captain Francis got himself transferred with a handful of men to the neighbourhood of Mpisane's kraals, which lay directly under the foothills, some miles north of the Sabi River. There, in a roughly fortified post, and served by a good system of native intelligence, by his constant forays, he made himself such a nuisance to the Boers resting along the edge of the escarpment that at length it was considered essential to organize a special force, in hopes of putting an end to his annoying activities.

A commando of several hundred men, specially selected for their knowledge of the country, and their fighting capabilities, was therefore secretly got together. Under the leadership of Veld-kornet Moll, it made a swift night march down the Berg, into the Low-Veld, and concealed itself all the following day in a remote part of the bush, far away from any native kraals. Having marched again as soon as it became dark, the Boers skilfully and silently disposed of all the native videttes who were stationed outside the camp, and who were either asleep or failing to keep proper watch, and at daybreak on the following morning effected a complete surprise. For some time the defenders offered a stout resistance, and without loss to themselves, shot down a good many of the assailants as they

tried to scale the parapet; but a stray bullet having killed Captain Francis, his small command at once surrendered, and were made prisoners. With the elimination of this detachment, all active hostilities in the Low-Veld came to an end.

In 1898 the Volksraad had declared the area between the Sabi and the Olifants Rivers to be a reserve, where no "game animals or birds might be disturbed." Although, in the absence of any special staff, the law was more honoured in the breach than in the observance, nevertheless this wise piece of legislation formed a precedent which has since been imitated throughout most European possessions in the African continent. Thus the Transvaal, under President Kruger, has the credit of first realizing the importance of protecting wild life, especially its larger forms, through the only channel which provides any really efficient safeguard.

A prolonged period of siccation had rendered much of the Low-Veld incapable of sustaining so large a native population as formerly, and its generally infertile character, combined with the ever-present malaria, negatived any idea of its forming a suitable area for white settlement. In fact the design and effect of the proclamation was to allocate a piece of country, which for long had been a kind of Alsatia, to the only useful purpose for which it was naturally fitted.

Fortunately, after the end of the South African War, the British administration was persuaded to carry on the good work. Sir Godfrey Lagden was appointed Commissioner for Native Affairs in the Transvaal, and in view of his active interest in and knowledge of all pertaining to wild life, the re-established Game Reserve was placed under his jurisdiction. Sir Godfrey at once realized that the proclamation of a game sanctuary was largely futile unless an adequate staff was appointed for the special purpose of seeing the law obeyed, and accordingly he busied himself with the selection and appointment of persons whom he considered to be suitable for the work. Until his retirement from the Transvaal service, on the formation of responsible government in 1907, Sir Godfrey Lagden never ceased to take an active interest in the development of the Game Reserve.

During the latter part of the South African War, Major Greenhill-Gardyne, adjutant of Steinaecker's Horse, an officer with great experience of big game in India, did much to prevent the extermination of the fauna, and the report which he drew up for the new government when peace had been concluded, concerning the ways and means of administration, was of invaluable assistance to the newly formed staff. Since that time the Game Reserve has passed through various vicissitudes. Extended in 1903 to embrace all the country to the Limpopo, it suffered in 1923 from the excision of a great deal of its western area; but in 1926 the National Parks Bill, thanks to the sponsorship and keen sympathy of the Hon. P. Grobler, Minister of Lands, and a grandson of President Kruger, passed through both Houses of the Union Parliament unopposed, and to-day all the eastern part of the Low-Veld, between the Limpopo and Crocodile Rivers, is a nature sanctuary, under the title of the Kruger National Park. This Park is subject to the supreme control of a board of trustees; it has its own regulations, and is administered by a special staff, whose main duty lies in preserving fauna, flora, and natural features generally.

Consequent on twenty-six years of strict protection, the wild life sanctuary of the Union of South Africa is so far unique that nowhere else in the world is it possible within twelve hours by train of a great industrial city to arrive suddenly in the midst of the Pleistocene, among animals which show little more fear of man than it may be supposed was the case in that far distant epoch of the world's history.

After the South African War a few Englishmen took up farms along the Crocodile River, down to about fifteen hundred feet elevation. But while, on the one hand, the permanent residents increased, the trekkers and hunters, owing to the establishment of the Game Reserve, no longer came during the winter, and native recruiting by unauthorized persons also ceased. The Low-Veld still continued to have a bad name for fever, and it was only after the conclusion of the Great War that the normal population of postal and railway employees, police, store-keepers, and administrative officials was augmented

by the land boom, which induced a considerable number of strangers to take up farms. Malaria, owing to the more sensible manner of life adopted, and perhaps to the fact that generally speaking there had been a long succession of rather dry and so comparatively healthy summers, was less of a deterrent than formerly. The influx was specially large along the upper part of the Greater Letaba River, and a settlement for ex-officers was established in the Leydsdorp area. Many of the new settlers brought their wives and families with them, and all over the Low-Veld, where it is in European occupation, may now be found white women—a contrast to the days preceding the South African War, when it was very much the exception for a Low-Velder to be married, and there were probably not more than three or four women of white race in the whole region. It is doubtful if even to-day, outside purely official and therefore temporary residents, the whole white population exceeds five hundred souls.

Many of the pioneers were attracted in the first instance by the prospect of cheap land, now so hard to obtain in the higher and healthier parts of the Transvaal, as well as by the glowing published advertisements of the country: whether they will remain as permanent residents it is yet too early to judge. The old type of Low-Velder is quickly disappearing, and in some ways this is regrettable, for, with all his faults, he had the redeeming qualities of generosity, hospitality, a considerable acquaintance with bush lore, and a freedom from convention, which, with his rich fund of anecdote, often made him an interesting companion.

Through the long years of the Great War, the Low-Veld, scene of so much horror and bloodshed in the past, dozed in peace. Some of the white residents, including half the staff of the Game Reserve, served in various theatres, and a few of the natives actually went to France with the South African Native Labour Corps. But, generally speaking, life went on as usual, and the world-shattering conflict might not have been in progress at all so far as this little backwater was concerned. Perhaps after its eighty years of violent commotion and strife the Low-Veld had earned its rest.

CHAPTER XII

NATIVES

Languages—Physical and mental characteristics—Social life—Etiquette—Health—Pastimes—Fashions

In old times the Bantu[1] inhabiting the western and eastern parts of the Low-Veld spoke respectively si-Suto and various dialects of the Zulu-Xosa group of languages ; but the general unrest, and the impact of invading and conquering races during the past century were responsible for certain linguistic as well as social changes. The Zulu conquerors under Manukosi imposed their own form of speech, as well as some of their customs, upon the Thonga clans whom they subdued, and henceforth a patois purely Zulu, though containing many native words and expressions, became for general use the language of the men. In the kraals, the women still continue to employ, undiluted, the various dialects of their ancestors.

In the South, Swazi influence shows itself in many of the words used ; but the Zulus and Swazis are more nearly related to one another in speech than, for instance, the people of Yorkshire and Sussex. In the south-west, the Ama-Mbayi have a language of their own, composite of the Swazi and Suto tongues. The small ba-Ngoni colony continues, with its immediate dependents, to speak more or less pure Zulu. In the extreme north some Sikalanga influences are found. However, in intercourse between different tribes a common medium is readily to hand, and all are at least bilingual ; the Hlangane clan, for example, use the Zulu word *ibubesi* signifying a lion, as readily as the Swazi *imbube*, or their own word *ingonyama*. All these languages are so expressive, and so rich in idiom, that by their means the native can admirably convey his thoughts, and it is therefore regrettable that European

[1] The word "Bantu" was originally adopted to embrace a large and closely allied group of African languages, but has latterly been used as a convenient term by which to distinguish the peoples who speak these kindred tongues from the other races of the continent.

influences often lead him to neglect the niceties of his own tongue.

The growing *lingua franca* nowadays spoken all over South Africa and beyond, is the jargon known as "kitchen kaffir." This, upon a Zulu foundation, comprises English, Dutch and Portuguese words, besides some of no known language whatever, and while innocent of all grammar, including even tenses and plurals, possesses a more or less European construction of sentences. This linguistic atrocity, like that of the west coast of Africa, or the pidgin-English of the Far East of Asia, has for many years been the usual means of communication between the natives employed in the industrial centres of the country and their white masters, and, from long use, has almost attained the dignity of a separate language—the industrial language of the country. It is even used in conversation between members of different tribes, who would not otherwise be able to understand one another.

Sometimes a working knowledge of it is, for general purposes, of more utility than to be a good linguist in one particular form of Bantu speech, as was proved by a friend of mine who went up to Portuguese Nyasaland to recruit natives for the Rand mines. His companion could speak Zulu perfectly; but on getting among the Mukua clans of the interior, my friend found himself obliged to interpret for his more erudite companion, since he alone could rattle on in the "kitchen kaffir" which some of the local natives had picked up while working in South Africa. Some years ago, during a day's fishing on Lake Nyasa, I myself was able, employing this jargon, to carry on long and animated conversations with my canoe boy, of whose language—Chinyanja—I had no knowledge whatever. In fact, at the present day, equipped with "kitchen kaffir" for the first part of his journey, a few words of Swahili for the second, and a sentence or two of Sudanese Arabic for the portion beginning with the Nile sources, a man travelling on foot from Durban to Cairo would experience no linguistic difficulties among any of the tribes he would be likely to encounter on the way; there would always be someone in every village acquainted, according to the particular lati-

tude of the place, with one or other of his conversational weapons.

In appearance the Thongas are usually of medium height, and of rather slight build, their complexions varying from deep chocolate to light brown; the majority grow slight beards and moustaches, but apparently are able to do so only after they have attained the age of thirty or thereabouts. Their varied physiognomy demonstrates the mixed origin of the people; there reside in the same village persons with typical negro faces—broad lips, flat noses, prominent cheek bones, very dark complexions—and others possessing light complexions, narrow faces, thin lips and pointed noses, while the majority of the inhabitants display gradations between these two extreme types. Possibly the coarser type represents that of the ancient inhabitants of the country, and the finer one that of various intruding races from A.D. 1400 onwards. There are also occasionally seen individuals of heavy build and powerful physique, with large full beards, pointing to nearly pure Zulu or Swazi blood. Many of the ba-Ngoni, and some of the ba-Thonga also, are distinctly Semitic in feature, and I have seen men who, dressed in turban and *galabieh*, might easily have passed for rather dark, but quite well-bred Arabs. The small Mbayi tribe contains many tall men, often well bearded, and these people generally are on the whole lighter in complexion than the eastern Thongas. The ba-Suto no longer inhabit any part of the Low-Veld; but communities of them are still to be met with among the Drakensberg foothills northwards from the Sabi, where some of their chiefs have made for themselves great reputations as rain-makers.

In physique Low-Veld natives are usually wiry rather than muscular, and they are capable of performing considerable feats of endurance. A man may have sat idle at his kraal for months on end, occupying his leisure with the lightest work, and filling himself daily with native beer, and yet, at the end of that time, having aroused himself in response to some summons, will be able to travel hard for long distances without showing any sign of fatigue. Some years ago a post-runner

was sent with an important letter to a place fifty miles distant, and accomplished the journey in fourteen hours—four of them in darkness—though it is perhaps fair to state that during the latter part of his walk he realized that he was being followed by a couple of lions !

On the whole, I should place the physical courage of the Low-Veld tribes above that of the general average of mankind. There are, of course, brave men and cowards, just as there are among other collections of human beings. The fact of a native's limbs trembling, and his eyes bulging, is as often a sign of violent excitement as of fear. After having, on the impulse of the moment, run away for a short distance, he will often recover himself, and come back. Acts of gallantry in saving companions or masters from dangerous situations are common : indeed, not infrequently the credit obtained by some white man for having emerged triumphant from a tight place should rightly belong to one of his native attendants.

When lions threaten the stock-pens at night, every villager, including all the women and children, turn out carrying lighted brands, and with these weapons, aided by their own vocal efforts, usually drive them off. When it happens that all the men are absent, the women undertake the task alone, and seem to think very little of it. It is quite usual for one or two native women, babies strapped on their backs, to start after dusk on a homeward walk of several miles through the bush. I was once told by a Portuguese commandant that among the mixed races under his command, which included members of the Yao tribe—source of some of the best fighting material in our own King's African Rifles—the ba-Tshangane stood out as easily the best soldiers, being equal to the central African natives in bravery, and excelling them in stamina. On the other hand, the willingness often displayed to accept unjustifiable risks is certainly due to lack of imagination ; faced with sudden emergency, a Low-Veld native is more prone to lose his head than a cool European.

Such an instance occurred two or three years ago, when a native policeman of the Game Reserve was killed by a lioness. The animal had been wounded, and had sought refuge in a

patch of thick bush. Heedless of the warnings of his companions, the man in question, who had several lions to his credit, and was full of confidence in himself, boldly walked up to the edge of the covert. When he was about ten yards from it, the lioness came out, straight at him. She had one fore-leg broken, and one hind-leg so injured as to be of little assistance to her, and therefore she could only move comparatively slowly. The native, armed with a fully-charged magazine rifle, at once dropped on one knee, fired, and missed. He had plenty of time either to fire again or to make good his escape, as everyone present was unanimous in stating that she could not possibly have caught an active man. Nevertheless, he neither attempted to fire again nor to move, and remained as if paralysed, until the lioness reached and caught him. He lived for about two days, and was quite unable to account for his own conduct, which was certainly not due to fear, since he had on many occasions displayed exceptional bravery.

This inability to act promptly sometimes shows itself in minor ways during transport accidents. Supposing, for instance, the wheel of the wagon collapses ; if no white man is present to issue orders, the driver, leader, and any friends who may happen to be there, will usually stand staring at the wreck, arguing about and discussing the matter from all points of view. A considerable time may elapse before anyone will think of outspanning the team—the first obvious thing to do.

In disposition the Thonga and other Low-Veld tribes generally, are good natured, very hospitable to strangers, law-abiding, industrious within their own limits and for their own requirements, truthful when not swayed by fear or suspicion, honest till spoiled by the wrong kind of contact with civilization, and devoid of malice and vindictiveness. Their strong sense of right and wrong prompts them to accept without complaint any punishment which they realize is deserved ; but they resent acutely, if silently, especially at the hands of a white superior, anything they believe to be of the nature of injustice. Their reasoning powers concerning their own affairs and matters with which they are properly acquainted are remarkably sound ; they possess a great faculty for logical

argument, and are born litigants, each case being argued out among them from every conceivable standpoint, until it is worn threadbare. For any short, sharp decision in a matter lending itself to argument, they have little use, nor can they readily grasp the European's point of view in this respect.

In South Africa few white men have either the time, the patience, the understanding, or the sympathy even to attempt to regard things from the native's point of view, and this failure is the source of a general popular misunderstanding of his character and temperament. It is a common fallacy when discussing obvious native shortcomings to make the standard of comparison that of fairly well-educated white men, whereas a juster simile would be that of a totally uneducated peasantry in some European country. Judged in this relation, the Low-Veld native, whether in regard to general knowledge of matters within his local ken, such as nature study, geography, meteorology, tribal habits and customs, or the broader field of judging human character and forming logical deductions from events, would not be found relatively lacking in quickness and intelligence.

It is often stated that his brain capacity is so limited that he is unable to rise above a certain limited mental level, and that having attained thereto, further development ceases. Recent experiences in South Africa do not support this assertion, for it has there been deemed necessary to limit strictly the industrial native's sphere of labour. At his lower scale of wages he was believed, with some truth, to be threatening the monopoly of the white employé in skilled work. It is dangerous to generalize, but many natives unquestionably have an earnest desire to learn, and individuals who have managed to pick up the rudiments of reading and writing in their own languages are constantly found acting as teachers to a circle of friends. Little herd boys, equipped with slate and pencil, are noticed laboriously figuring " A," " B " and " C," when they ought to be attending to their charges !

But undoubtedly on attaining the age of puberty the tribal native, while remaining in his natural surroundings, is still greatly handicapped by the maze of superstition and custom

TWO OLD THONGA MEN

THONGA MOTHER AND CHILD

in which he finds himself involved. His temperament is strongly sexual, and accordingly he tends to revolve in a vicious circle, his thoughts, to the exclusion of nearly all else, occupied with matters concerning witchcraft and the other sex. As he becomes older, all this has grown to be so much a matter of habit that the development of the mind is apt to atrophy. He is by nature more of a socialist than an individualist, and like other inhabitants of warm climates, wherein life under natural conditions is still the rule, food easily obtained, wants few, and European competition and hustle an exotic plant, he cannot see the necessity of strenuous, and what appears to him largely unnecessary, labour : why do a thing to-day which can equally well be done to-morrow ?

Singularly observant in matters which affect his daily life, he is often strangely incurious regarding details even of his own environment which he thinks do not concern him. Almost anything the white men may do is accepted as a matter of course ; he seldom attempts to attach any reason to it : our notions about things usually leave him cold ; he lives on a different plane, and to some extent realizes that he does so. Some of his peculiarities make him a sore trial to the patience. He is an adept at " shutting the door after the horse has been stolen " ; he will water dead plants because he was told to water them while they were still alive, and if instructed to irrigate the garden during hot, dry weather, he may still be found cheerfully continuing to do so even when it is pouring with rain.

If and when he can be tempted to offer an explanation of something he does not understand, his remarks are sometimes very original. I once asked an old retainer who had been listening to my gramophone, what in his opinion, was the motive power behind the voice which issued from the machine. After some hesitation he said : " Well, I have been told that if you take the windpipe of any animal and blow through it, it will make the same noise as was natural to its owner when alive, so I expect the white doctor put the windpipe of a man inside the machine, and when you set the machine going, the air blows through the windpipe, and makes it talk ! "

When it comes on to rain the white man usually puts on his overcoat, if he happens to have one : the native, on the contrary, rather favours the practice of taking his overcoat off, and folding it up to keep it dry. It is merely a question of the point of view, and I am not sure but that the native is in the right of it, at least in Africa. I think that at the back of their minds natives have for white men in the abstract, not veneration, but something approaching contempt. They fear the white man because, as they admit, " His medicine is stronger than ours ; " but finding him inferior to themselves in bush-lore, and the things which for them make up life, they consider him to be deaf, blind, foolish, ignorant and frequently cowardly,[1] while much else that he unfortunately does is far from inspiring respect among them. Many white men who live in native areas rely upon their " boys " for practically everything, though they are careful to assume to themselves all the credit of any meritorious happening. The native knows this perfectly well, and accepts it with his usual philosophy.

Of course, the above refers to comparatively unsophisticated tribal natives, and to their ideas in the abstract. They have great respect for many individual white men. Character always tells, and none are quicker in summing up a man than the Bantu, a capacity which often finds patent expression in the entirely different attitude which the same native will assume towards white men of good and of bad type respectively. A straightforward, self-respecting master never finds his " boys " cheeky. Tactlessness, practical gross discourtesy, ignorance, and lack of sympathy have always been more damaging to the peace of South Africa than even bad systems or lack of systems.

" It needs no long argument to point out the contemptible nature of those little-minded folk who are not ashamed to insult those unable to retaliate. They are sowing bitter seed which God grant their posterity may not reap. . . . Often, of course, gross discourtesy is the result of ignorance rather than perversity. The lower down in the scale of life the white

[1] I have heard of a white man in the bush sleeping, for safety, inside an empty water tank, while he made his natives lie outside to guard him more effectually !

man is, the more desperately he clings to the only thing he can really boast about—his colour—which, after all, is to his parents' credit not to his—therefore the more he tends in his dealings with natives to accentuate the huge gulf which he likes to think exists between him and them. Better education . . . is the only remedy for this."

The above, quoted from Prof. Brooke's deeply informative and, indeed, classical work[1] is, alas ! too true, and the evil he exposes, among others even more serious, may be seen at work all day and each day in practically every portion of the Low-Veld where natives and the less-educated type of white men are found together. It is a fact that the more a certain type of white man owes to the native, including, in many cases, his entire livelihood, and the more deeply he has degraded himself in the past by intimate associations with native women, the louder he declaims against " the lazy cheeky nigger." It is the expression of his inferiority complex, and the onlooker would almost believe that he finds it necessary to keep emphasizing the fact that he is a " white man," lest he might chance to be mistaken for something else. Unfortunately, decent and respectable white men, with only cursory experience of the Bantu, are apt to be, and, indeed, very often are, misled by the raucous declamations of these persons, and take their foolish and mischievous utterances to be an expression of truth, and not merely that of debased personalities. In connexion with demands that " kaffirs should be *taught* to respect white men," Prof. Brooke points out : " Respect can never be taught unless it is deserved, or needs teaching if it is deserved."

Stoical under surgical operations and apparently not very sensitive to external injury, our Thongas and others are always very much concerned regarding any internal malady or pain, which they usually put down to the operation of witchcraft or of poison, and they generally fancy themselves much worse than is actually the case ; a state of mind perhaps not surprising when it is considered that they are never quite sure how strong

[1] " The History of Native Policy in South Africa from 1830 to the Present Day," Prof. H. Brooke.

may be the spell of the poison from the effects of which they fancy themselves to be suffering. They are seldom cruel of set purpose, but they are shockingly callous to pain in other human beings and in the lower animals. A native does not seem to realize that anyone or anything except himself can suffer. Thus, fowls are often carried for hours head downward, sometimes two or three together, their legs tied as tightly as a string can be drawn ; occasionally, for a whim, they may be plucked alive " because the feathers come out more easily ; " tortoises are roasted alive, since it is difficult to kill them inside their shells ; if a baboon can be captured from a troop which has been raiding grain lands, it is considered a good plan, having partially scalped him, to pull the detached skin loose, like a hood, and then set him free " to frighten his companions."

Should it be pointed out that actions, of which the above are merely random instances, are cruel, the perpetrator will agree contritely, but afterwards will laugh with his friends at the foolish white man's ideas. It is not in the least that the contemplation of agony pleases them in any way ; it is merely that their mentality in such matters seems to be that of quite young children, and that they lack imagination. When a team of draught animals is flogged to make it pull harder, the most willing beast often receives the hardest blows. " What is the use of beating a lazy one, he does not pay attention ; but if you beat the one that likes pulling, he will pull all the harder ! " It never occurs to them to feed their own domestic animals. " It is waste of food which we require ourselves ; " animals must pick up their living the best way they can, or else die ; even a horse is given nothing except what it can glean for itself in the veld.

The Thonga clans are particularly unsympathetic in this way, yet an individual Thonga will look after, and will even appear to take a keen personal interest in his master's pets to which he is paid to attend. In spite of completely neglecting his dog, seldom, indeed, addressing it, except to shout " *Suka* " (" Get out "), a Low-Veld native often displays a certain—perhaps utilitarian—attachment for it, while the dog, for its

part, practises to perfection the art of picking up the crumbs which fall from his master's table. At any rate, each appears to understand the other very well, and a dog which has been brought up among natives seldom cares for the company of a white man, however well treated by him.

No native would dream, voluntarily, of catching alive any young wild animal, except for the purpose of eating it later, or unless he saw an opportunity of selling it to a white man, and in view of his attitude towards the lower animals it is not surprising that during his whole history the African negro has never domesticated a single one of the swarming indigenous species, though the zebra, the eland, the buffalo, and the elephant, all capable of useful work in the service of man, have been at his doors for countless generations. None of the domesticated species found in possession of African tribes on the advent of the European—cattle, sheep, goats, fowls—are native to the African continent, and all must originally have come from elsewhere.

Thus, in his relations to animals the negro has lagged far behind many barbarian races of the past and present, with whom, in regard to his laws, domestic economy, and general intelligence, he is often on a level, and does not, indeed, appear to be in the first respect any further advanced than the ancient hunters who slew the ancestors of the horse for food on the plains of Europe. In truth his requirements have not been such as to force him to contemplate his own wild animals otherwise than in the light of food, and there is hardly a species which is not eaten by one tribe or another. Low-Veld natives look on the meat of all the cat-tribe as a delicacy, while lion and leopard flesh have, in addition, the virtue of conferring strength on the consumer. Some Thonga clans will even devour the unsavoury crocodile; but baboons, jackals, hunting dogs, and hyenas are ruled out. Carnivorous birds are not eaten, but most others of sufficiently attractive size, to which no superstition attaches, find their way to the cooking-pot. Fish were formerly ignored by the Swazis and Basutos, and it is only of recent years that members of those tribes resident in

the Low-Veld, have acquired this addition to the table ; even yet their women do not possess the fish-baskets with which the Thongas make immense hauls from the rivers and pools of the Lebombo country. The ba-Ngoni still retain the old Zulu custom, and affect to despise fish, which they say are " food for the Thongas, and other slaves."

Unsympathetic as they are to the lower animals, Low-Veld natives are very kind to their children, and are not, on the whole, inconsiderate towards their old people, especially towards their old women ; but they laugh openly at deformities and physical infirmities. Albinos, who in former days would probably never have been allowed to grow up, are ostracized and driven from the kraals. On one occasion a blind man was brought to me by his relatives for examination, that he might be exempted from payment of the taxes which otherwise they would have had to pay on his behalf. To reach the place where I was sitting he had to be led up a flight of ten or a dozen wooden steps. On turning to go, he happened to miss his footing, and fell headlong to the bottom, hurting himself rather badly. So far from this accident exciting any sympathy, a roar of laughter arose from the whole assemblage, his own relations joining in as heartily as any of the others. People rocked to and fro, and caught hold of one another in an ecstasy of mirth ; not for long had they seen anything so funny as a blind man falling down a flight of stairs !

In further detriment of native character, their custom of idling while the women work is very often quoted. Adverse comment founded upon this is, however, largely fallacious. Men and women have their separate rights and duties very carefully defined by custom, founded on reasons which were perfectly sound in the not very distant past, and the women would be the first to resent anything they might consider to be infringement of their status. Thus, on the men devolve the manufacture and repair of all tools, weapons and utensils (except kitchen pottery), the making of baskets, karosses and sandals, the building of granaries and fences, the tending and milking of the cattle, the construction and thatching of the conical roofs, and the building of the walls of the huts ; in the

old days there were added to these duties the tasks of hunting and of defence. The women, in addition to their domestic work of tending their children, cooking for the family, and generally looking after the interior of the huts, which they also plaster, undertake all the agricultural labour, including the hoeing of the land, the sowing of the seed, the reaping of the crops, the pounding of the grain into flour, and the brewing of the beer from the seed; but in the field work the men sometimes assist, and an unmarried man cultivates his own plot of the communal land. The cultivation of tobacco—used only in the form of snuff—is carried out by men only.

When a husband is absent from the kraal it is the duty of his wife or wives to carry food to him, and the transport of all household goods when circumstances entail a move, is performed by the women. Whether working or travelling, the married woman is never seen without her last baby firmly strapped on her back in the *ntehe*—a piece of skin specially fashioned for the purpose, the making of which is, curiously enough, considered to be the husband's work. While thus secured, the infant usually remains perfectly still and silent, and this is true also on the rare occasions when the mother finds it necessary to leave it temporarily by itself. Should a stranger then happen to approach it, it will make no sign unless and until it thinks itself observed, when it will at once burst into strident howls. A young wild animal, left alone while its dam goes to seek food, acts in much the same way, bleating or trying to escape only when discovered.

Most of the Low-Veld natives possess goats and fat-tailed sheep, and an increasing number own cattle, the last-named used mainly as currency in connexion with marriage customs, and seldom killed for food except on certain special occasions. Cows' milk only is consumed, and that in curdled form. The staple food is maize flour, cooked into thick porridge, and eaten for preference with a seasoning of ground nuts or pumpkin; other vegetables grown are sweet potatoes, beans, ground peas, water melons, manioc, and sometimes tomatoes. Kaffir corn or millet is largely cultivated, but used almost exclusively for the brewing of native beer. Millet and sorghum suffer much

from the depredations of small birds when the grain is ripening, and at that season the women spend most of their time in the fields scaring off the marauders. As a rule the women cook only once a day, and the principal meal is eaten at sundown ; the men eating first, attended on by their female relatives, who consume their own portions later.

The European, fresh from the customs of the society in which his own life has been spent, is apt to hold up his hands in horror at the spectacle of a woman labouring in the fields, while her man sits near by carving a knobkerrie ; or struggling along, her baby on her back, and the household goods on her head, the while her husband steps lightly in front carrying nothing but a stick. But this—to him—repellent sight is merely a survival of days when the male had always to be free and unencumbered, his weapon in his hand, ready to repel a raid or to frustrate an ambush. Encumbered with a load, he might be surprised and slain defenceless, his wife and child kidnapped, and his goods taken.

The huts are of the conical-roofed type found throughout most of central Africa. To the apex of each is affixed a circular crown of carefully-plaited grass, which completes the roof very neatly, and has a certain significance, being always immediately removed in case of the death of the owner, and not left to decay with the rest of the hut. The doorways are very low, seldom more than three feet high. The huts are built in a segment of a circle, facing the goat or cattle kraal, which is constructed of thorn bushes, but occasionally of stakes fixed in the ground. Each wife of the headman is entitled to her separate hut, and each collection of huts shelters only one family. If the headman chances to have any sons living with him who are married, each is entitled to a hut for himself, and a separate hut for each wife beyond the first ; but very frequently young men on getting married build their own kraal at some distance away. There is a hut for the unmarried boys, and another one for the unmarried girls ; grain stores of uncertain number, and usually a big shade tree to sit under in the heat of the day.

The compound, or open clearing in which the huts stand, is

kept swept clean, but the immediate vicinity of the village is a rubbish heap for all refuse, and the traveller must carefully pick his steps. The light circle of brushwood sometimes laid in a circle round the whole enclosure is not built as a protection against bodily enemies or wild beasts, so much as to keep out witches and other evil spirits. The interiors of the huts are kept scrupulously clean, and contain, as a rule, little furniture beyond a stool or two, and some rolled-up mats for sleeping. The younger generation favour pillows and bedclothes of the European kind, but formerly all natives slept on their grass mats spread on the hut floors, feet to the central fire, bodies covered with karosses of buck skin, and necks laid on the little wooden pillows which are now so rapidly disappearing.

All the Low-Veld natives are still living under the tribal system, albeit with considerable modifications. The son of Gungunyane, who, with others of the late royal house of the ba-Ngoni, is now a refugee in the Transvaal, is acknowledged by all the Thonga clans, embraced under the title of ba-Tshangane, as paramount chief, and all appeals from the awards of minor chiefs under native law are still taken before him for decision. There is always a further appeal to the Native Commissioner of the District, to whom also it is open for natives to go for arrangement of their disputes; but in the first instance it is usual to get the matter settled if possible by the chief of the parties concerned. It has been found the best policy, so far as may be, to bolster up the waning authority of all native chiefs, and to give them some sense of responsibility by backing their decisions wherever these are not obviously unjust according to native ideas; but their authority only extends to civil and not to criminal cases, and they have no power to enforce punishment for any disregard of their decisions. Nevertheless, there still lingers among the people a strong feeling of traditional loyalty, and an unjust decision may receive readier acceptance when emanating from a superior of their own race than a more exact one from a white official.

The tribal is really a communal system; the chief, though he has, or rather had, autocratic power over the lives and property of the members of the tribe which he rules, is nevertheless,

looked on by them as the embodiment of the tribe, and must himself conform to the iron law of custom and public opinion —which are the real forces controlling the body politic—just as fully as the meanest of his subjects, under penalty of loss of power and of life. It is only exceptional men, such as was Tshaka, the Zulu Napoleon, who are able for a time to raise themselves above the law, and their end, like Tshaka's own, is always a violent one. Once the communalities have been broken and his tribal system destroyed, the individual African is like a ship without a rudder, and, bereft of his accustomed guidance, falls an easy prey to every natural impulse.

Formerly it was the duty of the chief to distribute the tribal land among his subjects; it being understood that any area allocated to the headman of a village remained the exclusive property of the latter for agricultural purposes so long as the people chose to remain in the locality; but if the site for any reason was changed, the ground could be given to anyone else who wanted it. At the present day, the same system obtains in a modified degree; the chief's authority in the matter has vanished, and for it has been substituted that of the Native Commissioner; but the general custom of tenure still exists, and a village community—usually consisting of a single family only—continues to work its chosen ground until the soil ceases to be productive, and then moves, as of old, to some new site, abandoning the former one to Nature or to anyone who chooses to adopt it. Each woman within the commune owns her own plot of tilling ground, for which she is responsible, and with which she will not tolerate any interference; she frequently has also her own storehouse in the kraal.

The community is admirably law-abiding, and serious crime of any kind very rare indeed. A certain amount of squabbling and fighting occurs about the time of the marula harvest, as the result of drunken quarrels; on such occasions the men fight, a stick in each hand, and since they are usually either too skilful or too drunk to hurt one another, serious damage to the combatants is the exception. In the old days, many people were done to death on charges of witchcraft, but this custom, though now considered and treated as ordinary

murder under our law, was strictly in accordance with native ideas of justice and cannot be considered in the light of crime. To-day, offences such as theft are as rare in kraal life as they are common in the neighbourhood of the railways and the white settlements. On the other hand, suicides, mainly the outcome of unfortunate love affairs, are not unusual, and commoner among women than among men ; hanging is the ordinary method employed. The Courts are generally concerned with transgression of native pass laws, minor assaults, poaching and failure to pay Government taxes ; two thirds of the cases are for breach of the white man's regulations, and so are not recognized by natives as moral transgressions.

The native always prefers arbitrament in any dispute to taking the law into his own hands. Trial by a European Court does not commend itself to his ideas. Excepting in those of the sub-Native Commissioners, little consideration is given to his superstitions and customs, which are, in fact, often a sealed book to the Bench. Native cases are usually heard through an interpreter, and where the white man trying the case does not understand the vernacular, the way is obviously open for abuse. Nor is it clear to the native mind why, when everyone knows that a certain man is guilty, he may nevertheless be acquitted by a European Court of Justice. Raw natives practically never plead " Not Guilty " to offences which they have committed, and accept with equanimity the penalties inflicted ; but a little experience in the towns and settlements quickly teaches them the folly of this procedure.

As an illustration of the confusion implanted in the native mind by our methods, a certain man committed for trial was advised to retain the services of a lawyer to defend him, and the latter demanded a fee of £5 for having done so successfully. On his return home the native denied that he had been acquitted of the charge, since he had been obliged to pay £5 ! Raw natives find it difficult to distinguish one strange white man from another, just as to white men, unused to them, all natives appear to be alike ; it is only the type in each case that impresses itself.

Insanity and imbecility occur, but are relatively less

numerous than among a European population. I recollect one man who took entirely to living down ant-bear holes in the bush, enlarging them for the purpose of habitation, and existing on roots and berries. Another, more dangerously afflicted, went round the country burning all empty huts in his path, stating that they contained devils. There are certain families which seem to throw back to a more primitive state of existence ; these people never work, prefer life in the bush and a diet of wild fruits, with such animals as they can kill, to an ordered village life. In one such family—that of Xolweni—the members were all more or less affected in this way, and all had the strange, half fierce, half frightened look in their eyes often displayed by wild carnivorous creatures when confronted by man.

Tuberculosis and various forms of pulmonary complaints appear to be the main causes of premature mortality among the men. Formerly, the great majority of those who went to work in the gold mines of the country contracted phthisis. Although the disease perhaps did not make its appearance until long after the victims had returned to their homes, and although in the majority of cases they failed to realize to what their illness was due, it undoubtedly exacted an enormous toll of life. Of late years, the much greater care exercised in the protection of native workers underground has done much to check miners' phthisis ; but apart from that disease, Low-Veld natives working in any capacity in the high altitude and cold climate of the plateau country frequently have sown in their systems the seeds of lung troubles, which in the end carry them off. The change from the semi-tropical conditions amid which they have been reared is too great, and too sudden, for their constitutions to resist.

But, except for a certain natural weakness of chest, these people are on the whole possessed of strong bodily systems. For instance, they have not been affected by syphilis nearly so much as have other aboriginal or primitive peoples when first brought into contact with Europeans, and I have noticed, not an increase, but rather a decrease of the disease in the Low-Veld during the past twenty-five years. Cases of leprosy

occur, but are rare, and probably acquired elsewhere. There have been periodic outbreaks of small-pox; but vaccination and the isolated manner of living have always prevented serious epidemics. To their dislike of herding together in large communities is also to be ascribed the relative immunity the Low-Veld tribes enjoyed from the influenza visitation of 1919. Their natural inclination to chest weakness is greatly accentuated by their habit of smoking *dakha* or hemp. Although the smoking of this weed in moderation does not do much harm, and indeed a few whiffs after a long journey act as a pick-me-up, indulged in to excess, it breaks up the constitution and makes a complete wreck of the victim.

The Low-Veld natives grow old sooner than healthy Europeans. A man of fifty-five is often fit for very little; at sixty-five his faculties often begin to fail him, and, should he survive to seventy-five or eighty, he is in the last stages of senile decay, and twisted with rheumatism. I cannot credit the great ages sometimes ascribed to individual natives, nor, extraordinarily retentive as are the memories of these people, did I ever come across an old man who was able from his own recollection to describe any event which had taken place more than sixty years back.

They do not suffer from the results of the ordinary accidents of life more than a normal European community. Many of them are quite efficient at first aid, and can reduce a dislocation, set a limb, and administer dressings to wounds with considerable skill. They dislike consulting white doctors, whether for accidents or for constitutional maladies. They have less faith in their skill than in that of their own practioners, and many of them are convinced that if sent to the white man's hospital, they will have to suffer amputation of arms or legs.

There was formerly a good deal of ceremony and etiquette, which is nowadays largely dying out. The Zulus imposed many of their forms of salutation upon the peoples they conquered, and the ba-Tshangane use the Zulu *inkosi* (chief), or *inkos' e' pakati* (chief who is within), or *indab' e' ziti* (your word is law) as terms of respect for superiors. The ba-Suto address the chief as *morena*, and the Thonga clans in the north

say *silwane* (wild beast). When two acquaintances part, he who is going says : " *Sala kahle* " (" Stay in peace "), while the other says : " *Hamba* (or *famba*) *kahle* " (" Go in peace "). Old men are usually addressed as *baba*, and old women as *mamana*. The greeting by clapping of hands, possibly at one time general among the Thonga clans, is now noticed only in the north, though occasionally the women practise it elsewhere.

The principal pastimes of the men, when at home in their villages, are beer drinking, dancing and *dakha* smoking. The first is universal, but the last is abjured by many altogether, and only practised to excess by a limited number. The extent of the beer drinking is limited only by the quantity of the liquor available, and that in turn by the success or otherwise of the harvest ; but, generally speaking, *tshwala*, or beer brewed from the kaffir corn, is available in varying quantity all the year round, whereas the marula festivals fortunately continue only during the month or two during which the fruit of the umgana tree is available.

When the headman of a village has been informed by his women-folk that a sufficient quantity of beer has been brewed, invitations are sent out to all and sundry in the vicinity, and neighbours arrive from every direction on the appointed day ; the country-side is deserted except for the women and children —every male has departed for old Puzindaba's kraal. Arrived there, each carrying his own drinking vessel, and the ordinary civilities which etiquette demands having been duly performed, the guests seat themselves round the huge jars brought out by the women to the shade of the village tree, and interrupted only by intervals for food, steady and continuous drinking goes on all day and far into the night. All are welcome, every passing stranger is given a seat. At first things are quiet ; conversation is normal and decorous, but as the day advances, singing and mirth increase, and by night everybody has reached some degree or other of the desired intoxication. Dancing, in which both sexes join, commences, and the festivities are terminated only by slumber overcoming the revellers.

Unless all the beer has been drunk, operations are resumed at an early hour on the following day and continue as before

until the last drop has disappeared. Where an unusually large quantity is available for consumption, the affair may last three days, or even more. Native beer is a thick brown liquid, when freshly made rather sweet and pleasant to the taste, but as the process of fermentation goes on, turning slightly sour. The grain pulp, which naturally settles to the bottom of the pot, is occasionally stirred up, and the mixture becomes food as well as drink. In action this *tshwala* is very mild, and were it not for the enormous quantities consumed, its effects would be little apparent. When intoxication occurs, it induces first cheerfulness, and later a deadening of the senses, and sleep ; it does not tend to leave behind ill effects after a carouse, in the sense that the drinking of spirits does. Marula beer, which is a great deal stronger, appears, on the other hand, to induce combative tendencies, and nearly all the quarrels and fights arise from the drinking of marula, and not of kaffir beer.

Dakha or hemp, which is cultivated for the purpose, is smoked from a long reed pipe, towards the upper end of which is inserted a bowl in which is placed the weed. The lower end of the reed stem is then placed in a horn filled with water, and the action is more or less that of a hubble-bubble pipe, the smoke being drawn through the water into the smoker's mouth, and inhaled into the lungs. The consequent coughing and spitting is thoroughly enjoyed, in fact the more a man can spit, and the longer he can cough, the more accomplished a smoker he is considered to be. Amid the paroxysms of coughing the man shouts in sing-song tones, and at the top of his voice, any nonsense that occurs to him ; after a few draws the pipe is handed on to his neighbour, and so round the circle.

A quieter and more scientific amusement is the game called *tshuba*, played with stones. Very few white men understand it, though it seems to be common far outside the boundaries of South Africa. I must admit that, although I have watched scores of games being played, I have still only the most imperfect and rudimentary conception of the rules. However, in a general way, this is how the game is played. Each of the two players makes in front of him two rows of holes from four

upwards to as many as twenty, but always an even number. Two small stones are placed in each hole, and the players play in succession. The stones have to be moved one by one in a regular rotation from one hole to the next, and when a stone arrives at an empty hole the player of it appropriates the stones of his opponent in the two holes opposite; he then has the right to take the stones from any one of his adversary's holes he chooses. After this the other man has his turn, and the game goes on till one or other has lost all his stones. With a few holes, say four on each side, it is a simple enough game, but it becomes proportionately long and involved as the number of holes is increased.

After the evening meal, when the fires glow inside the huts, comes the time of what may be called parlour games, in which the ladies take the prominent part—riddles, stories and folk-lore. By about three hours after sundown the village is asleep. The small boys have their own games, which are many and varied, some are games of skill, others are centred round mimicry of animals, wild and domesticated; there are sham fights with sticks, and a game not unlike hockey. When the herd boys are out with the goats, and free from the supervision of their elders, they like to get rid of their superfluous energy. Bullying occurs just as among white children. I once found two urchins tormenting a yet smaller one who was tied to a tree. It appeared that he represented a prisoner, while they were a doctor and a warrior respectively. Under the instructions of the doctor, the warrior was threatening the prisoner with a small piece of burning stick, and it was the yells of the victim which first attracted me to the spot.

Dancing is always a great feature of native life. It is indulged in on special occasions of festivity, during beer drinkings, and sometimes on moonlit nights when the spirit moves. There are a very large number of dances, each divided into its separate figures, with the appropriate steps and music; for singing and drum-beating always accompany the dancing. The war dances, now largely obsolete and either borrowed from the Zulus, or showing Zulu influence, are specially impressive, and are, of course, performed by the men

YOUNG THONGA DRESSED FOR A DANCE

UMTOMA TREE GROWING OUT OF WHITE ANTS' NEST

(CHAPTER III)

only. The thundering chorus of deep voices as the war song is chanted, is punctuated by the rhythmical stamping, all together, of hundreds of feet. Warriors alternately spring from the ranks, leaping high into the air with brandished weapons, their faces distorted with excitement, the while they intone the words of the song, the chorus of which is taken up by their comrades, who, during the solo, keep up an uninterrupted and loud hissing. At intervals the spears crash together against the shields, and the air is rent by shrill whistles. I think it is the stamping of the feet on the earth in exact time, which, where large numbers of men are concerned, makes the ground shake, that above all impresses the mind.

In ordinary dancing the women participate, and stand in an inner line or half-circle, facing the men, clapping their hands in time to the movements of the dance and the beating of the drums, while the men exert themselves in foot-work and body-play according to the demands of the figure of the dance which they are executing. There is a pause between figures, much laughing and chatting, and, when the dancers have rested sufficiently, a call for the next one. On the conclusion of each dance the company retires to consume any beer that may be provided for them by the people of the kraal where the entertainment is taking place.

Native dancing, besides calling for considerable skill, endurance, and agility, often shows, in the conception of the figures, a great deal of artistic sense. For a festival dance everybody dresses up in all the finery that is at his or her disposal, the girls, covered with bead ornaments, their legs from knee downward encumbered with coils of brass wire, and clad in calico of the colours and patterns affected by their clan; the men befeathered, bunches of wild-cat tails round shoulders and hips, their ankles encased in bracelets of large fruit stones (*izimbova*) which rattle like castanets. Waistlets and armlets of palm leaves are favoured by some; light dancing sticks, sometimes ornamented with streamers, are carried in the hands by the male dancers, and flourished according to fancy. A native dance is a strenuous performance.

The Thongas, like other tribes whose traditions are those of

the great waterways, are clean in their persons, and both sexes are fond of bathing and washing themselves whenever the opportunity occurs. The men do not follow any special mode as regards hairdressing; they keep their hair cut fairly short, though the youths sometimes like to straighten out their woolly curls, after having smeared them well with red ochre. Swazi men prefer the hair rather long, and this custom prevails among the 'Mbayis. The women follow various fashions according to the customs of their particular clan. Those nursing babies cover themselves and their offspring all over with a thick smearing of red ochre, and the hair is pulled out into long rats'-tails, also well smeared, which hang down over the forehead and the nape of the neck. Only the Swazi and ba-Ngoni married women adopt the fashion of drawing up their hair in an ochre-smeared crown to the centre of the head.

The older married men of all tribes except the ba-Suto formerly adopted the Zulu custom of *khehla*, or wearing of the large ring (*umbadi* or *isicoco*) of polished wax, which is placed on the crown of the head, and worked in with the hair. It is a sign of maturity and dignity. But the custom is rapidly falling into decay, partly on account of the intrusion of civilized influences, and the *amakhehla*, or crowned men, are now very much the exceptions. The ornament is sometimes worn for a time, and then discarded, not necessarily nowadays as the result of some tribal observance or order, or because owing to the growth of the hair under it it requires replacement, but at the mere whim of the owner; it no longer carries its old attributes of freedom from manual work, nor is it suitable to the wearing of a hat! The women of some Thonga clans tattoo their loins and stomachs, while those of the ba-Ndawo in addition pierce a hole through their upper lip.

The Thongas display considerable aptitude for mechanical work, and are considered superior to all other South African natives in mining and in other industrial employment; but they dislike farm labour, and do not shine in connexion with animal transport, or care of stock generally. The exact opposite holds good of the ba-Suto, who are excellent agriculturists, and are comparatively reliable with animals. The

Swazis or ba-Ngwana are essentially pastoral, making excellent herds and cattle tenders. The Hlangane clan of the Thongas, having through many years been obliged to subsist mainly on the wild game which they could succeed in killing, still contains some good hunters. Many of the older men yet living are, in their knowledge of the habits of wild animals, in tracking lore, and in their skill in setting snares, comparable with any natives in the African continent. Individuals of the Ama-Mbayi and of the Low-Veld ba-Swazi are also excellent hunters and trackers. In fact, all the Low-Veld tribes and clans are more or less energetic game-killers, and, with packs of dogs, snares made of telegraph wire, rifles obtained in mysterious ways, and even bows and arrows, they would, unless kept in check, quickly make an end of every living herbivorous animal within their range.

All these tribes display a growing desire to accumulate private property. Business instinct, in connexion with matters well understood, is keen, and, though they lack the huckstering spirit so highly developed in some other African tribes, they have, nevertheless, quite a good eye for a deal. They usually bury their capital in the earth for safety, and for that reason the return of the Union of South Africa to gold currency was regarded with definite approval.

On the whole, Low-Veld natives, whether considered morally, mentally, or physically, or judged by their good manners, and their natural leaning towards discipline, law, and order, compare very favourably with some other African peoples. Indeed those South African white men who lack experience of less amenable folk do not always realize how exceptionally fortunate they are in the natives with whom they have to deal.

CHAPTER XIII

NATIVES (*Continued*)

Religion and superstitions

MISSIONARY enterprise has not, up to the present, made much progress in the Low-Veld, and the number of converts is negligible; in fact I believe that a considerable majority of natives who attend or have attended missions revert to tribal customs on return to their villages. Now and then, however, they bring back with them spelling books and similar aids to literary education, and a certain leaven of the latter tends to spread from such sources.

Some of the native primers found in the villages, and no doubt obtained in this manner, are of the most antiquated character. One, now in my possession, is labelled " inncwadi yabantwana " (children's reader), and though it is dated 1911, the illustrations, besides being extremely crude, depict the period of about 1840 in *England*—sailing ships, primitive locomotives, stage coaches, white men in tall hats and high stocks, white women in poke bonnets, and what purport to be representations of various European animals—few of them capable of conveying anything familiar to the native mind. Doubtless more modern treatises exist, but happening to find this one in use quite recently, it appeared to me surprising, seeing that the first step in the literary education of the native is presumably to excite his interest, that those who essay his teaching as their business should display so little imagination as to provide him with literature at least seventy years out of date. Since, however, he is anxious to be educated, he will doubtless continue to progress whatever the means adopted, and irrespective of whether such literary progression will ultimately prove beneficial to the present position of the white race in South Africa or otherwise.

Whether or no the civilization of the native will proceed conjointly with his general conversion to the Christian religion, at least there is no trace of any Mohammedan intrusion. Although Portuguese East Africa (and for that matter the Union also) contains many followers of Islam—Indians, Swahilis and others—the faith of the Prophet does not yet appear to have made the slightest impression upon the local natives.

It would be incorrect to suppose that our Bantu tribes possess no religion of their own ; but forms of worship which in the long past may have been more precise, have now become so clouded with a mass of grossest superstition concerning sorcery and evil spirits that they peep out only here and there, finding expression usually in burial and other rites, of which the origins are lost in the mists of antiquity. To the native mind the unseen world is crowded with spirits, most of them malignant and to be propitiated. There is believed to be a supreme and benign Power at the back of all things, and a hereafter, of a nature not clearly defined. Though these matters are seldom if ever discussed, the idea of immortality finds clear expression in the rites connected with ancestor worship.

The present is a period of transition for the native ; one in which old beliefs, customs, and rites are rapidly crumbling before the numbing impact of western civilization, and accordingly information becomes year by year more difficult, and soon will be impossible to acquire. Even to-day, among tribal natives, ritual is losing its meaning, and is kept alive mainly by the influence of the older men, and of the women. Youths proceed to the industrial centres of the country, where they often remain for many years. On returning to visit their homes they show themselves frankly contemptuous of the old customs, to replace which they have brought back nothing but a taste for European dress and cigarettes. Consequently the student of the future will owe a deep debt of gratitude to such men as M. Junod, of the Swiss Mission in Portuguese Africa, who, before it was too late, set down in his classic work, "The Life of a South African Tribe," a painstaking and complete account of the customs of the people surrounding him.

As M. Junod so clearly sums up the results of his long studies: "The human soul continues its existence after death, when it is endowed with new powers which make it awesome, and to be feared. The spirits of ancestors are the main objects of religious worship. They form the principal category of spirits."

The above forms the key to the foundations of belief in all South African Bantu peoples. The spirits of ancestors usually concern themselves only with the lives of their existing descendants, but the departed spirits of chiefs must be propitiated by the whole tribe or clan. The spirit of the immediate progenitor of a living man has more power than those of more remote ancestors, therefore it is with his own father's spirit that a man is most concerned. Umnyamane (since himself deceased) was a petty chief of the ba-Loi clan, and his father, a noted hunter, had been buried under a tree near where the old village had formerly stood. On the tree had been placed two crossed elephant tusks, and during his son's life-time an earthenware bowl stood by the grave. This bowl was once a year filled with native beer, a fowl's throat was cut, and the blood sprinkled on the tomb. Beer and food were supposed to be provided for the spirit of the departed. That the ceremony had come largely to be regarded as a matter of form, was evidenced by the fact that immediately after its completion drink and food alike were always consumed by the devotees, who were accustomed to remark that the smell of the good things was quite sufficient for the spirit of the departed!

It is now the general belief that spirits gratify their appetites through the sense of smell; whether this has always been the case it is impossible to say. During the course of an unsuccessful day's hunting my tracker happened to pass by the site of his old kraal, and he stepped aside to invoke his father's spirit for luck. He squatted down on the exact spot where in former days, he said, his father had been accustomed to sit, bent his head, and muttered for about a minute. Some of the party, belonging to another family, meantime smiled and made inaudible remarks, of what nature it was not possible to discover.

A traveller passing the grave of his deceased chief is supposed to lay some offering upon it; if he happens to be a relative of the dead man, at least a square inch of calico is expected, but it is sufficient for anyone else to pluck merely a few threads from the loin-cloth or to dedicate a couple of maize seeds. At the same time a prayer is generally offered, during which the petitioner does not assume any devotional posture, but merely mutters a few requests, such as "Keep me safe to-day, and see that I come to no harm," or "Let me have success in my hunting and other undertakings," or "Let my grain crop be successful." This offering of gifts to the spirits of the departed is known as *pahla*. Ancestral spirits usually exercise their powers to kill, or otherwise punish those of their descendants who have committed offences against rites and customs, or who they think have neglected to make sufficient offerings to them.

While what may be called the higher side of his religious beliefs tends to have less and less hold over the native, and does not now exercise any very great influence over his ordinary actions, on the other hand sorcery is a matter of everyday life, and has to be constantly reckoned with, and, if possible, circumvented. To begin to get an inkling of his psychology, it must be realized that his life is largely influenced by the conviction that practically everything untoward that has happened or may happen in the future to him must be the result of witchcraft. Though possessed of much common-sense, and strongly developed reasoning powers in ordinary mundane matters, at the mention of the word *takati* natives glance fearfully around, and seem to lose all their sense of proportion. A great deal of ignorance regarding the details of this belief, and the extent to which it obsesses the Bantu mind, prevails among white men, even among a few of the white officials who, in the course of their duty, have to deal with cases in which natives are involved. This occasionally has led to gross blunders. Thus, when a man accuses another of having murdered someone, he most likely implies that the death was caused by sorcery; but the unversed European is apt to accept the statement in the only sense in which he

understands it. "Imputing witchcraft" has now very rightly been made an offence under the law, and accordingly natives are less inclined even than formerly to discuss with white men whom they do not know or trust what is really the dominating factor in their lives.

The general ignorance surrounding the subject of Bantu superstitions among those who are not brought into intimate daily contact with these people is, therefore, not surprising. Native Commissioners and Missionaries are the best qualified persons to write of all pertaining to native customs and beliefs, but what they know and possibly record is seldom made public; in fact, Missionaries, with a few exceptions, appear rather to shun any divulgence of the heathen beliefs which it is their object to dissipate. From a scientific point of view this is a great pity, since the time is rapidly passing when anything further can be known of them.

To combat the evil influences which surround him, the native finds champions in witch doctors, rain doctors, and medicine doctors, while the spirits of his ancestors, if properly treated, may also help. It is a matter of course that many living persons maliciously practise sorcery, and these must be assiduously and constantly hunted out by the witch doctors, otherwise they will work untold harm, and nobody's life or property will be safe. There is, besides the black art, another form of what may be termed "white" magic, often centred in old women,who, by its means, have the power to work counter-spells against the malignant witches. They are able to call to themselves at night various wild animals, which they then instruct how best to restrain those other and less well-disposed creatures —subjects of the black witches—from doing harm. But the black witches also possess this power of summons to the full, and the commands which they issue to their satellites are always malevolent.

The witch doctor, in the days of his full power and glory, presented a fearsome aspect. Masked, hung all over with bladders, animals' tails and other ornaments symbolic of his trade, he would bound into the circle of trembling onlookers, each of whom regarded his neighbour as a prospective victim.

Working himself into a frenzy, he would spring hither and thither, pointing, ejaculating, his eyes glaring, and his mouth foaming, until at length his quarry selected and indicated, he would collapse exhausted on the ground.

Witch doctors are no longer permitted to practise in the Transvaal, a wise piece of legislation, since they were formerly responsible, not only for promoting the killing of many "smelt out" persons, but also were accustomed to kidnap young children, from whose bodies they extracted certain parts to be used in the concoction of their potions. I recollect a case in which a woman, working in the fields, had set down her three-years-old child at a little distance away from her. Happening to look up from her work, she saw a man in the act of running away with it in his arms. She at once gave the alarm, and the man being caught, was found to be the agent of a witch doctor. The trade still flourishes in Portuguese East Africa, and doctors living in that territory are frequently consulted by persons from the Transvaal who wish to discover to whom they must ascribe the death of some relative.

For "smelling out" purposes it is nowadays usual for witch doctors to invoke the assistance of "the bones." This method of divination is also much employed for the more innocent purposes of discovering lost property, ascertaining the welfare or otherwise of absent friends, foretelling the future and so on, and is practised for such ends by natives who, without being trained doctors, consider themselves to possess a flair for mysticism. Indeed, many men have their own set of "bones," which they are accustomed to throw for their private information when in any doubt or difficulty, for so elaborate is the system that it can be made to fit practically every incident which is likely to occur in the life of a native. When not in use the bones are kept fastened up in a small skin or cloth bag, and consist of fifty or sixty fragments of the knuckle and other bones of wild and tame animals, pebbles taken from crocodiles' stomachs, gall stones, shells, sometimes pieces of china and tin. Each "bone" represents somebody or something, and possesses a sex and a meaning. The operator spreads a cloth or mat on the ground in front of him,

squats down, and having poured the bones out of their bag, he takes them up in his two hands, which are held close together, palm upwards, spits on them for luck, and then, with an exclamation, throws them with a forward jerk, so that they fall spread out on the mat before him. Using a little wand, he then begins to point out the bones one by one, for, knowing what each fragment represents and implies from its position relative to the others, he is able to gauge the future, or discover what he wants. There is no secret about the matter; most natives understand something of bone-throwing; often several friends sit round and assist in the interpretation.

But should, for instance, a theft have been committed, and the culprit not be forthcoming, it may be deemed necessary to call in the assistance of a professional. In such cases the procedure is somewhat as follows: Having previously received his fee, the doctor arrives and sits down; all the people of the village, men, women and children, seating themselves round him in a semicircle, at a distance of a few paces. The doctor does not proceed to business until satisfied that every soul is present. Assured on this point, he proceeds to produce and to throw his bones in the usual manner. While touching the various fragments lightly with his wand, he keeps up a constant patter regarding their position, and at each point made by him the audience call out in chorus: "*Si ya vuma*" (We agree). When the first throw has been exhausted and nothing further remains to be said about it, the doctor takes up the bones and makes a fresh one, and so it goes on till the conclusion. During the whole time the astute expert keeps his trained eyes covertly, but keenly, scanning his audience, endeavouring to detect anyone who by his appearance, or the tone of his voice, shows signs of guilt. It must be borne in mind that every one of the people present, including the thief, implicitly believes that the bones will tell the truth, and therefore, human nature and guilty conscience being what they are, it is almost certain that sooner or later the culprit will betray himself in some way.

Directly he thinks he has detected in anyone signs of uneasiness, the doctor, as he touches a certain bone, remarks

that he can now see the thief, at the same time watching narrowly the man whom he suspects, and should he become confirmed in his first opinion he begins, at first very cautiously, to describe him, ostensibly from the position of the various bones to one another. "Ha, I can see him now; there he sits; he moves his hand." Perhaps on this the culprit makes some unconscious nervous movement, and the doctor feels he is beginning to get warm on the scent. "Yes, there he is; he wears a necklace!"—pause and another scrutiny. "He has a loin-cloth on!"—pause. "Yes, a blue loin-cloth!" Then, when all have cried out "*Si ya vuma*" in growing excitement, the doctor, now sure of his man, goes on: "Yes, I see him! He need not think he can escape punishment—he has a big nose; and—look at his feet—his great big feet!"

By this time the culprit is in a state of uncontrollable terror, and gives himself away badly. But the trained doctor is never in too much of a hurry, though he feels he may now permit himself to look discreetly at the person of whose guilt he is convinced. He therefore makes a few more remarks, and finally, indicating him with his wand, says: "There sits the man!" In nine cases out of ten the latter owns up, and is reported to the chief, who adjudges what restitution must be made (in former days he might have been sentenced to death or mutilation).

Very expert doctors are able to smell out by firelight, but the majority can only do so by day, as they require the light for the study of their audience. In this fashion witches are also smelt out; but at the present day, owing to the obstacles placed in his way by the white man's law, the doctor must usually divine by the bones alone, without having any opportunity for seeing any persons suspected of sorcery. No doubt the proper use of the bones demands more skill, and is of much greater interest than many of the methods employed for the same ends in civilized society. Perhaps it will occur one day to some progressive spirit to introduce the system of divination by bone-throwing to the main centres of Western culture, when doubtless neat little ivory bones of various colours and patterns, produced from a satin bag, may become temporarily popular

in the society circles of London, Paris and New York ! Having borrowed African music and dancing, there seems no good reason why we should not copy the despised native of that continent in other respects also.

If an individual smelt out for an offence should deny his guilt, he has the option of going through the ceremony known as " drinking the *mpondo* " against his principal accuser. Should he challenge the latter to this ordeal, and meet with refusal it is a token of his innocence ; but if the challenge is accepted they both proceed, accompanied by all who may be interested, to the *mpondo* doctor, to whom accuser and accused each pay a small fee. The financial side of the matter adjusted, the doctor obtains the ingredients from the bush, and when everything is ready all repair to the vicinity of the medicine hut and sit down in a circle, in the middle of which, and some distance apart, squat the contestants. The *mpondo* drink—which, among other ingredients, contains the pounded root of the mbandu tree—is believed to possess this attribute, that, while it can do no harm to an innocent person, if a guilty one drinks it and does not at once confess, he will die upon the spot. Having mixed the drink, the doctor hands the pot containing it to an old woman who serves him as permanent official cup-bearer. If anyone else touches the pot his arm will become paralysed.

Each contestant then proceeds alternately to take a sip of the liquid, spitting out the fibre in front of him. The effect is intense internal burning pain. The sipping proceeds until one or the other, to evade the death which he feels rapidly approaching, owns, either that he is guilty, or that he has made a false accusation, and immediately falls back, crying out that he is about to die. His opponent, secure in his sense of righteousness, and, therefore, confident that no ill can befall him, sits in his place, stoically enduring his suffering.

So soon as the ceremony is concluded, there is a great blowing of horns and beating of drums in congratulation of the victor and praise of the doctor. The guilty party is taken away, and next day, when he has fully recovered, is sentenced to whatever may be the penalty, which, of course, is varied to

suit the offence. In a case which occurred some years ago in Portuguese territory, when a man was found guilty of having poisoned a woman, the sentence was a fine of £35. At the present time, should a conviction for witchcraft be brought home against anyone, the punishment takes the form of social ostracism. No one will have anything to do with an *umtakati ;* he is considered to be the enemy of mankind, and in former days would have been killed as a matter of course.

Perhaps the deepest of all the many causes of resentment cherished against the white man's law is that it suffers the witches to live. To the native every one of his acquaintances, male or female, represents a possible sorcerer : each is quite sure he himself is not one, but that is the limit of his certainty. Occasionally clever scoundrels actually levy blackmail by pretending to possess occult powers, and when their victims make any public accusation against them they retaliate by threatening prosecution in the white man's Court for "imputation of witchcraft," and may even require further bribes not to bring this serious charge. The following is practically a word-for-word statement once given me by an old retainer, and it gives a good idea of how natives regard the matter of witchcraft generally :

> Witchcraft is very prevalent among kaffirs, and there are a very large number of witches. In every village, however small, one hut at least will be inhabited by an *umtakati.* Of every four people you meet on the road it is likely that one will be an *umtakati.* In these cases the other people will not be aware of it. Women are much more given to witchcraft than men, not only are there more witches found amongst them, but their witchcraft is, as a rule, of a worse kind. When a woman is a witch, she secretly instructs her female children in the art, when they are about five or six years old. Usually there is not enough witch medicine to go round more than two children, so if she has a third she kills it, because it would not do to have one of the family outside the circle. Witches, male and female, all know one another. They all regard one another as brothers. When a witch is in a strange country and comes to a village, or is travelling along a road, he knows if another witch is in the village or has been travelling along the path in front of him. He can smell him. There are many kinds of witches; each witch usually specializes in one particular form of witchcraft. The worst kind

are those who bewitch people. They do so because their hearts tell them to do it ; they like to see people ill and dying in pain, but sometimes it is because they want to inherit the wives, or the daughters, or the stock of some relation, and so they put him out of the way. Other witches make a speciality of bewitching the crops, sending birds, and baboons, and locusts, and so on, to eat them up. Others of this kind bewitch stock—goats, cattle, poultry, etc.

The witches who bewitch people have the worst kind of familiars. Their chief familiars are lions, leopards, hyenas and crocodiles. Sometimes a witch will lend his familiar to a brother witch for a night or two to carry out some particular project. When everyone in the kraal is asleep, the witch steals out, and calls for his hyena —which is the favourite animal for witches to ride on—mounts him, and goes away on his business wherever it may be. Sometimes a witch spreads wings, and flies like a bird, but in whatever way he goes, it is well known that he can go immense distances at night, and he is always back in his hut before anyone is up in the morning. If he sleeps in a hut with someone else who is not a witch, he bewitches this person so that if he should happen to wake up in the night, he thinks the witch is still lying there asleep. If he should chance to be suspicious, and the witch finds out, he always kills him by his magic. Sometimes the witch has his familiars to visit him in the hut at night, and can be heard conversing with them. His method of using them is to go with his lion or leopard or hyena to the cattle kraal of his enemy, or to watch by the path where he knows he is coming along. In the latter case he says to his beast : " That is the man." Then the beast kills the man and brings his body to show to his master. Hyenas and leopards are mostly used for stock killing, and lions to kill people. The witch always accompanies the familiar on these expeditions to direct it what to do, but he is always invisible both then and when he is riding on its back in the bush. The most dangerous witch in the low country at the present time is Nghomo. Nghomo boasts about being a witch, and is always blackmailing people. If you refuse him anything he requires—a goat, or beer, or what not—he says : " All right, I will send my children to visit you some night." Then you are afraid, and give him what he asks for.

Nghomo sent the young leopard that got into the game warden's sheep pen, and killed a lamb. That was because the warden had been angry with him for cheating the people. It was only a very small bit of magic, because Nghomo was not very angry. Once Nghomo went away to Mnyamana's, about half a day's journey; but that night the people heard him distinctly talking in his own hut. It was a sort of murmur like witches use when talking to their familiars. Someone said : " The *umtakati* has got a lion

in his hut." Then the people came with their assagais and fire, and they set fire to the hut, and sure enough a lion came rushing out half burnt, and the people stabbed it to death. When Nghomo came back from Mnyamana's next day, he was very angry at the people for killing his lion, and he certainly put a spell on them, for one of them died within the year, and several bad things happened to the others.

Jakalase is a witch; he bewitches crops by sending birds to eat them. He denies he is a witch, but the doctor told him he was one, and he has to pay a goat and £2 to Tshokwana as compensation for the damage his birds did.

Methlwana's wife is also a witch. She sent the crocodile that took the little boy from Bob's kraal in 1904. Bob, her late husband's brother (Methlwana is dead), has taken her as a wife, and the matter was arranged with the doctor, so she does not practise magic now, partly also because of the cattle and her children, which she would lose if she was convicted again.

Witch doctors have to learn their trade just like witches, and each witch doctor specializes his magic against a certain kind of witch magic. When a witch has been found out, sometimes by paying the doctor a lot of money he can get off being killed by the latter. In the old days the doctors found out all the witches, and Gungunyane had them killed always. But now that the white men have stopped witch hunting, and persecute the witch doctors, witches have become very numerous in the land, and great numbers of people and stock are killed and crops destroyed by them, far more than formerly. In fact, like Nghomo, they go about the country openly boasting that they are protected by the white people and can do as they like. This is all very bad for the country, and no doubt it will go on till everyone has been killed by the witches. It is a pity that the white people take the side of the witches.

All night birds are of ill omen. Especially owls. The worst owls are the big horned owls. When they come and hoot at night near a kraal someone is going to die. Before my last child died an owl hooted several times. Also before the little sheep herd died last year, an owl hooted for three nights. This was one of the smaller kinds of owl; though not so bad as the big ones, they are dangerous too. This boy was quite well when he went to bed, and in the morning he was dead, with no mark on him. If you kill, or hurt, or try to hurt an owl, the arm you use is at once paralysed. The only plan, then, is to go to a doctor, and get some magic medicine which you throw at the owl. Then, if alive, it goes away, and your arm gets better.

Of course none of these things affect white people, who have their own sort of magic, and are not harmed by kaffir sorcery as a rule, so far as I know. But some white men are *batakati*, when

they have lived a long time here. Mostulela could bewitch people from a long way off.

In dark caves and in all big holes there are ghosts. These ghosts are very numerous in the mines. You can hear them tapping sometimes, and you think it is a person, but it is a ghost (spook). The natives won't go into corners where ghosts are, and the white men who work in the mines are sometimes very frightened of them also. These ghosts can kill you. When anyone falls down a place, or some earth falls on him, and he is killed in a mine, it is no doubt the work of one of the ghosts. They are very fond of blowing your candle or lantern out, and then you must run.

People who suffer from epilepsy or hysteria are believed to be possessed by evil spirits, called *madumula*, which must be exorcized if the patient is to recover. These spirits are not those of ancestors, but usually of departed members of hostile tribes, and are very malignant. Fortunately the treatment of *madumula* is well understood. For instance, it is common knowledge that the evil spirit likes to go out for a walk every evening, returning about dawn, and the relatives of the sick person naturally like to make certain that this desire will be indulged. Accordingly it must be induced to come forth, and tempted to remain out as long as possible, by some delicacy which is likely to engross all its attention. It is known that the most tempting bait that can be furnished is the intestines of a hippopotamus hung up in the sun until they make their presence known at a considerable distance. The evil spirit loves the aroma of this, and after having left the sick person, goes straight to the bait, and in its intense enjoyment, forgets to keep watch. Then come the drummers by stealth, and getting between the evil spirit and its victim, raise so terrifying a din that the former, shaken with terror, slinks away and returns no more for that night. Throughout the seizure the patient has to swallow, under direction of the doctor, various concoctions calculated to " destroy the devil's nest."

A spirit actually in possession may sometimes be frightened out by direct action ; but to achieve this the noise made must be very great, and very long continued ; in fact it must last until the patient falls exhausted, which is the sign that the

madumula has forsaken its victim. It is difficult for a European to understand how the patient contrives to survive the usual treatment for possession. For example, a young woman may be suffering from some nervous complaint, to cure which, according to our ideas, rest and quiet is essential. From dusk until nearly midnight, her entire family, crowding closely round the girl inside a small hut, beat drums and sing at the top of their voices, while she, poor thing, no matter how ill she feels, must dance throughout the proceedings, with pauses only long enough to enable her to swallow the doctor's nest-killing prescriptions. At dawn, the hour when the temporarily evicted *madumula* may be expected to return, the concert recommences, and lasts till an hour or two after sunrise.

A girl of about fourteen years of age, daughter of an otherwise very intelligent man, contracted a bad chill, followed by fever and rheumatism. I suggested putting her to bed and keeping her warm ; but this did not suit her father's ideas at all. He made her get up, cut some incisions in her back, into which he rubbed some dark-coloured powder, and then forced her to dance for hours in the manner above described. Strange to say, the girl, instead of succumbing, in due course completely recovered.

All natives wear amulets against *takati*, such as pieces of tree root, small bones, and hairs, or other portions of wild animals. Hyena's lips, and the galls of crocodiles are believed to be strong anti-witch medicines. Love charms are also much worn ; for creating and retaining the affections of the desired one, nothing is better than certain portions of the leaf-nosed bats.

Internal pains and fevers are sometimes thought to be caused by a snake, of course implanted by a witch, which is gnawing at the vitals, and which may be killed by the administration of the proper medicine. To point at anyone with extended finger is equivalent to the Evil Eye, and, therefore, the closed fist or the chin must be used to indicate persons or objects.

Sidawana is a mythical beast, like a small lion, which always lives " far away." It is not possible to meet anyone who has

actually seen it with his own eyes; but many people "know someone who has." The creature rejoices in a bright red coat, the hairs from which possess the property of turning everything they touch to the colour of blood. If a man succeed in acquiring some of these hairs he need never go hungry. Should he visit a village, and, when there, be refused any food or drink which he may happen to demand, all he has to do is to drop, unobserved, one of the hairs into a dish, whereupon the contents apparently turn into blood. Of course the people of the village recoil in horror, and will not touch them; but he, knowing the cause, and aware that hairs of the *Sidawana* have no ill effect, is able to eat and drink his fill.

There is another and more malevolent animal, resembling a domestic cat, which is secretly bred by sorcerers. This creature is sent out at night to visit, and if possible scratch sleeping persons. If it is successful the wound causes dangerous blood-poisoning. Lightning is caused by a bird which enters the ground when and where the flash strikes: the spot is taboo, except to the doctor who specializes in this matter, and whose duty it is to dig out the bird. If he should fail to do so the place must be avoided. The bird being invisible to all but the doctor, his efforts are frequently successful, and when the lightning has struck some well-frequented spot in a village, he naturally receives adequate remuneration for his services.

The doctors supply a medicine for use in cases of theft by small boys. If thrown on the fire it is supposed to cause the death of the thief, failing his confession. At a village not far from my own residence the headman had the sum of two and sixpence stolen from his hut; suspecting one of the children, he at once set to work "to burn the medicine." Immediately a boy of about twelve, called Mtsengane, rushed across the river, where his mother was working in her maize garden, and confessed to her that he was the culprit; the woman threw down her hoe, and made as fast as she could for the hut, to tell her husband what had occurred and to get the burning stopped before any damage accrued to her child.

Next in importance to the witch doctors come the rain doctors. A rain-maker who is good at his job can make a great deal of money. It is supposed that Basutos can all make rain—because living amongst the hills they themselves always have a plentiful supply—and often during a drought great efforts are made in a Low-Veld village to detain a visitor belonging to this tribe. In old days the ba-Hlangane clan of the Thonga had some reputation as rain-makers, which tends to indicate that the part of the Low-Veld inhabited by them once had a much greater rainfall than it now enjoys. A few individuals still practise the art. One of them, Umsongwe, though a poor man, and only practising locally, was believed, some years ago, to be remarkably proficient. The Suto chief Matsibela, who considered that he held a monopoly for all that part of the country, sent for him and asked him why he pretended that he could make rain, adding that he would tie him up and put him in prison for being a liar. "All right," said Umsongwe, "but to-night you will see me bring rain." The sky at the time was cloudless; but the same night such a storm arrived that the whole of Matsibela's village was flooded out, and the chief rushed in a hurry to release his prisoner.

The greatest rain-maker by far in the Low-Veld at the present time is the m'Mbayi chief Mpunzane, whose mother was a full-blooded Suto woman. In the great drought, 1912-13, Matsibela went down to Portuguese country to make rain there, while Mpunzane stayed on the Sabi. Very heavy rain fell on the latter, but not a drop in Portuguese territory, which once and for all established Mpunzane's superiority. So great is this man's reputation that people come from even as far as the Pongola on the Zulu border, bringing presents, and imploring him to send them some of his rain.

He is an extremely astute old gentleman, and he never, so far as is known, has stated or even admitted to anyone, black or white, that he can make rain. If asked by a white man if he believes he can do so, he stares blankly, and answers: "How can I make rain any more than you can? Only God can send the rain." To a native he says much the same thing, but,

seeing him sitting surrounded by his little rain-pots, the latter knows that it is merely a form of speech, leaves his present, and departs hopefully. If rain falls the grateful people reward the chief liberally, otherwise he would be angry, and would not give them any rain another time ; whereas if the desired rain fails to make its appearance, they realize that it is because their presents are not considered sufficiently liberal, and therefore they hasten to add to them. Rain is certain to come sooner or later, and Mpunzane always maintains the same attitude : " I never told them I could make rain ; how can I help them leaving presents ? " In consequence of his reputation he has now amassed quite a considerable fortune.

A wagon driver employed by the writer was a half-brother of Matsibela, and at various times received quite a lot of presents to induce his relative to make rain ; but unfortunately there occurred a period of four successive drought years, in that particular part of the low country, and his clients' patience wearing out, he lost all custom. A youth, sentenced to a short term of imprisonment for some minor offence, was reported to be a relative of Mpunzane ; there had been no rain for over five weeks, and the crops were withering, so the native police sergeant went secretly to him in gaol, and promised him a month's pay if he would send a shower. Sure enough one broke within about two hours and established the youth's reputation for ever after.

In 1912-13 there had been already three years of drought, and there was only purchased grain in the villages. Mealies had gone up to 30s. per 180 lb. bag, as sold by the white storekeepers to the natives. A little rain fell about the New Year, and all the grain planted by the white men grew well and ripened, while the native crops sown at the same time, died, or remained small and poor. The explanation was that while the former ploughed deep, the latter, following their system, merely scratched the top of the ground with a hoe, and knocked the earth over the seed with the big toe, so that the hot sun soon reached, and burnt it up. One native borrowed a white man's plough, but a big colony of weaver-birds came and built close by, and the baboons also raided daily, so he got very

poor results. Accordingly, local natives were firmly convinced that the white men, whom they believe to be all in league with one another, had worked a spell on the native crops, and had moreover brought the birds, and instructed them to build in thick thorn trees, whence they could not be dislodged, to ensure that mealies might still continue to be sold at 30s. per bag.

Totemism is absent from among the Low-Veld native tribes; unlike a great many African races, including the Basuto, they have no sacred animals, and they eat the flesh of every creature that can be remotely considered palatable. In fact the hyena, the jackal, and the wild dog are about the only mammals that do not find their way to the cooking-pot, and these not by reason of any mystic attributes, but merely because they are not considered desirable or healthy food for human beings. The lion, the leopard and the hyena are known to be the potential familiars of sorcerers and witches, but that is considered no argument for sparing their lives; though an individual animal suspected of being *takati* would not be eaten; even a dog consuming the flesh might die.

Owls are about the only creatures it is considered unlucky to kill, since they are believed to possess occult powers. Nevertheless, natives, rightly or wrongly, credit all animals with higher powers of reasoning and perspicacity than are granted to them by Europeans, and they are convinced that the carnivores, especially, are able to warn each other of coming danger, and to discuss other pressing matters.

A native I knew well, once told me he had become possessed of a medicine guaranteed to keep him perfectly safe, should he at any time have to sleep out alone in the bush. I immediately said: "Now, Ntutu, would you go to-night and sleep at Umkudhlene?" mentioning a place where lions were generally to be heard at night. "Well," he said doubtfully, "I am sure it would be all right, but you see I have only had this medicine a very short time, and all the lions may not have heard about it yet, and some fool of a lion might come along, and ignorantly kill me!"

Though there are no totems, animal folk-lore holds an

important place in native story-telling, and in it the hare occupies the position of cunning assigned to the fox in European tales of similar character. Juggling is practised, and skilful sleight of hand is sometimes shown. I recall a young native woman who put a single mealie under each armpit; then, having thrown them away, she invited anyone to search her, even to look in her mouth, nostrils, and ears; after she had been given a clean bill, she suddenly blew one of the seeds out of each nostril. The mother, who was a doctor, had taught her this and other tricks.

Formerly it was the rule when twins were born to kill the apparently weaker of the two, or the male, when the children were of opposite sexes, and to bury it, stuffed, like an ordinary dead infant, into an earthenware pot. This custom, though not so universal as formerly, still undoubtedly exists among the ba-Hlangane, and it is exceptional to see or hear of any twins among them. It is believed that to avoid unpleasant inquiries, such infants are killed by pushing a pin into the top of the skull. In some Thonga clans, all twins, although considered uncanny, are welcomed, since it is thought they possess certain powers in regard to lightning.

CHAPTER XIV

NATIVES (*Continued*)

Ceremonies connected with puberty, marriage, death, burial and mourning

When a child is born it is given a name which it may bear through life, or may change at puberty—the kraal name; in addition it has its *sibongo*, or family name; but nowadays all "boys" when they first go out to work adopt also a working name, chosen by themselves or someone else, which may be English, Dutch, or a native corruption of one or the other. Though there is plenty of variety, the tendency is to follow well-worn grooves; thus "April" and "July" are common; but "February" and "March" are seldom heard. Of numbers, favourites are "Five," "Six," "Seven," "Fifteen," "Seventeen," "Numberone" and "Numbereight."

Coinage is brought in—"Tickey," "Sixpence," "Shilling," "Half-a-crown," "Pound." Proper names commonly used are "Jim," "Klaas," "Charlie," "Joe," "Tom," "Dick," "Bob." A certain native appeared to be very proud of his adopted name of "Damfool." "Office" and "Kitchen" are very common. These working names are employed in all dealings with whites, sometimes even in conversation amongst themselves, and are retained to the end of life.

When a boy is about five years old, he is considered sufficiently grown to accompany the other urchins to tend the cattle or goats, and thenceforth becomes practically independent of female control. A child of between five and six was one day seen driving home with perfect *sang-froid*, and entirely unassisted, three head of cattle which had strayed, and which he had set out to find and bring back; he had crossed a river drift in the course of his march, and when noticed was herding them back with many shouts, and a small stick, by the same

route. The native child is so much more precocious than the European, that a lad of six is more generally knowledgeable within his local limits, and better able to look after himself, than an ordinary white boy of nine. Girls are considered adult at about fourteen, and boys at sixteen.

It is said that in olden times circumcision rites were practised by all east coast tribes, but that the custom was done away with among the Zulus at the time of their early conquests, and subsequently disappeared among all the peoples who came under their influence. The Hlangane clan of the Thongas, who lived too far away from the Gaza kingdom to be more than nominal subjects, still possess the custom, though it seems to be gradually dying out.

As late as 1902 " schools " were held regularly every four years, at which all boys between the ages of about twelve and sixteen had to attend. Later the intervening periods lengthened, and six or seven years have sometimes elapsed without one being held. These schools, or " lodges," are held in the bush, far away from any habitation, and last three months. The boys of the required age are sent by their parents, and the time is the early winter. Certain men who have graduated as teachers are in charge, and conduct the various rites. Everything is kept very secret, and no one not on duty thereat is allowed to approach the school, or to communicate with the boys during the whole period of initiation. The novices are taught, and compelled to speak a secret language, and they also wear a special dress made of palm leaves, that travellers may know them at a distance, and avoid them. After having been circumcised, each boy is put through various ordeals and trials, with the object of teaching him endurance ; he is starved, beaten, exposed naked to the cold nights, and otherwise ill-treated. Women from the villages bring food daily for their young relatives, but must set it down at a distance, to be fetched in by the masters or " shepherds " of the school. The boys, when their wounds have healed, are taken out by these men, and, always wearing their peculiar garb, are taught to hunt game.

At the conclusion of the school, they are told that they are

now men, that they have passed the ordeals, and that in future they must behave no longer like little children ; must not steal food from the fields, kill their father's goats on the sly, tell lies, nor commit any of the other peccadilloes, which, excusable in small boys, are beneath the dignity of men. Initiation rites for girls, of somewhat similar character, exist among some tribes, but at the present day these have all died out in the Transvaal Low-Veld.

Marriage, with its accompanying *lobolo*, occupies a great part of the native's life, and indeed competes with *takati* for the possession of his mind after he has attained the age of puberty. Polygamy exists, as amongst all other African races, and accordingly the number of wives a man may have is measured only by his ability to pay the marriage portions or *lobolo*. As a matter of fact, for economic reasons, one wife is the rule, and it is only when men become elderly, and, so to say, settle down, that they begin to amass wives. The most noticeable result of polygamy is that no girl, no matter what her appearance may be, is ever found unmarried after the age of puberty ; in consequence there are no superfluous young women, and no prostitution away from the towns and settlements of the white men.

The marriage tie is well respected, and though backslidings occur, they are rarer than among civilized Europeans. Formerly the offending couple were promptly executed, but nowadays it is merely a matter of the father or brother paying the marriage portion back to the injured husband, and then, if possible, recovering it from the lover, who has to marry the lady. Failing compensation, the husband is entitled to the custody of his own daughters by the marriage and to receive the *lobolo* money for them when they marry. If restitution in full has been made, the disposal of the children is settled by agreement, the chief deciding any dispute.

When a young man desires to enter the married state, which is always as soon as, and frequently before, he can afford it, he pays his addresses in the time-honoured manner to the maiden of his choice, and, if favourably received, proceeds to interview her family. Owing to the custom of polygamy,

girls hold a very favourable position, and can all select their husbands. The family hold a council, and the dowry money is fixed; formerly the price of an ordinary girl among the ba-Hlangane was ten head of cattle, but it is now from £35 to £50, according to the status of the girl's family. The daughter of a chief or principal headman would cost more, and should a Hlangane man venture to desire marriage into any of the Tshangane clans, the price would be raised high against him.

Up to twenty years ago inter-clan marriage of this kind was unusual; the ba-Tshangane, or clans who had been subjects of Gungunyane, speaking of and treating the ba-Hlangane, who had been a frontier clan, as "dogs," though all are of the same Thonga blood. Latterly, such marriages have become quite usual; but a Tshangane lady never fails to let her Hlangane husband feel the honour that has been done him, and when discussing him with her own relatives, he is referred to as "a dog."

There is a great deal of ceremonial connected with the betrothal, which varies with different tribes, and even clans; but there is always a *lobolo* feast as soon as a portion of the wedding present has been paid over by the prospective bridegroom. An ox for slaughter is given by the latter over and above the amount of the *lobolo*, and custom lays down which portions must be allotted to certain relatives of the bride, of whom the father, mother and maternal uncle are the principal. After the full amount has been paid, the bride is brought with some ceremony by her family to the bridegroom's hut.

Strictly according to custom the marriage should not take place until the whole *lobolo* has been paid over, but latterly this has tended to lapse: the father urgently wants money, and the youth wants his bride; so a small portion only is paid, and he takes the girl; thereby often sowing the seed of long wrangling and many quarrels. Having got his wife, the young man is in no hurry to pay over the rest of his debt: often years pass, his father-in-law hales him before the chief; he declares he has paid every penny, and brings witnesses to back him; he vociferates that the *lobolo* agreed upon was

originally much less than that now stated. The father-in-law likewise overstates his side of the case as much as possible; the witnesses of each party support their principals; in the end the matter is adjusted by the husband agreeing to pay the full amount decided by the chief within a defined period, failing which he can be fined for ignoring the decision.

In the case of the husband ill-treating his wife, she usually runs back to her family, and the husband, should he follow her, is driven away by them, and has to return to his own kraal. It is then open to him to demand his wife's return, or failing that, the handing back of the *lobolo* money or cattle. On her side, the wife may either decide to return to him on his promising to behave better, or she may refuse to go back, and seek to justify her action before the chief. If the latter decides in her favour, the *lobolo* money is not returned to the husband by the family, and the wife is allowed to keep possession of the children; or there may be a compromise regarding the latter, the wife to bring them up, and the husband to receive the *lobolo* on one or more of any girl children when married.

In his " History of Native Policy in South Africa " (pp. 233-246), Professor Brooke defines the *lobolo* system in the following words:

> *Ulobolo*[1] may be taken to be a contract between the father and the intending husband of his daughter, by which the father promises his consent to the marriage of his daughter, and to protect her, in case of necessity, either during or after such marriage, and by which in return he obtains from the husband valuable consideration, partly for such consent, and partly as a guarantee by the husband for his good conduct towards his daughter as wife. Such a contract does not imply the compulsory marriage of the woman. The *lobolo* may, upon every principle of sound law, be recoverable under such a contract.
>
> It is not a contract of purchase or sale. The terms " buying " and " selling " are scarcely fair terms to apply in describing the transactions referred to. The property given in the case of marriage among these people, forms a provision for the widow and family in the case of the husband's death, which arrangement is held sacred and universally respected. . . . As clear indications that *lobolo* is not a contract of purchase and sale, we may

[1] *Lobolo* is the noun and *lobola* the verb.

notice the following points as forming part of the substantive Native Law on the subject among every Bantu tribe of South Africa, exceptions thereto being distinctly felt as breaches of tribal morality: (1) The woman does not become her husband's slave. (2) He may not kill or injure or maltreat her. (3) If she leaves him owing to his misconduct, he does not have a claim against the parents for the *lobolo* cattle, thus losing bride and cattle together. (4) He may not sell her to another man.

Ukulobola is the Zulu word exclusively used to describe the handing over for a consideration ; and is different from, and does not carry the same meaning as the word *tenga* which is used exclusively to indicate sale or barter . . . . *Lobolo* is not a mere local idiosyncrasy of the Bantu, but as widely spread as polygamy itself, and discoverable in the course of natural evolution among nearly all the peoples whose laws and policy were similar to the laws and policy of the Bantu . . . from the earliest age of history *ukulobola* was practised among all oriental nations, and in their migrations towards the West they brought it even to Europe, where it dies away . . . a system . . . which is entitled to at least as much respect as the European custom of giving and receiving a ring.

All matters relating to birth, marriage and death are strictly regulated by law and custom. They are the affairs of the whole community, and infringement of any of the observances is a very serious matter. It is, for example, strictly forbidden for husband and wife to cohabit during the suckling period of the child. In some tribes this enforced abstinence is made up to the husband by the wife providing one of her unmarried sisters to take her place temporarily. When a wife dies before she has had a child, her family often provide the widower with another girl at a cheaper rate of *lobolo*.

The first wife taken by a man always remains his principal or " great " wife. As her husband and herself attain mature years, and younger wives are added to the household, it is she who is responsible for the domestic economy of the village, and she is consulted by her husband regarding his business and other affairs. The great wife of a chief is not necessarily his first one. It is customary for his people to pay the *lobolo* on the daughter of some other chief of equal rank, whom he deliberately selects as his great wife. He must himself pay for all his ordinary wives in the usual manner.

Marriage between near blood relations is not permitted, the prohibitions being stronger on the father's than on the mother's side, possibly in connection with *lobolo*, as in the event of domestic trouble and separation, it might have to be repaid by the husband's own family. These *lobolo* cases sometimes come up after not only years, but even a generation ; I have been asked to decide regarding the *lobolo* to be paid on an old woman already a grandmother, who, lost to sight of her relatives during the Gungunyane war of 1896, made her appearance more than twenty-five years later ; most of the witnesses and original principals were already dead, and the money was claimed by and from a younger generation.

Differences in the household become very common as the number of wives increases ; when there are more than two, one of them is almost certain to be accused by the others of being a *takati*, and if the doctors disagree, the wrangles go on, and usually end in the accused woman, finding the home unbearable, going off and taking her children with her. Then the husband wants settlement made regarding their disposal, especially of the daughters when they reach marriageable age, and while the wife claims that she has been driven from home through false accusations, the husband maintains that he was not responsible, and that she can come back if she likes.

The chief always demands an honorarium for settling such disputes, and so the parties much prefer going to the white native commissioner, who is supposed to hear and decide such matters as part of his day's work ; but, if a wise man, he will insist on their going to the chief, and so far as possible enforce the latter's decision. One old man, blessed with three wives, complained that he had not slept for weeks owing to the quarrelling that went on between them all night, and that when he tried to enforce order, all three united to beat him ! The husband, among the Thonga, has to take second place (and often third or fourth) in the family *ménage*, nor are the ladies' tongues upon occasion less eloquent than those of some of their European sisters.

A girl may refuse to marry a man to whom her people have affianced her, and often does so if she has a younger, and from

her point of view more satisfactory swain in mind. In such a case, if she has a strong will, she may threaten to commit suicide, and so work on the family fears in regard to loss of *lobolo* that if the young man of her choice can make even a small payment down, and hold out some hope of a further instalment in the future " when he comes back from work," matters are usually decided as the young people wish.

When a person dies from any cause except war or old age, it is assumed that he or she has been done to death by sorcery, and after the funeral ceremonies have been concluded, one of the first duties of the relatives is to consult the witch doctor, and find out who is the culprit. Since witch-finding no longer may exist as a profession in Union territory, it is now necessary to travel to Portuguese East Africa to obtain the necessary information. It is a long journey on foot, and, unless the case is a very grave one, is not always undertaken ; but the bereaved family discuss the matter at home in all its bearings ; someone is sure to be suspected, and things are then made very disagreeable for him or her.

A man who was killed by a lion had possessed two wives. His great wife had quarrelled with his brother, who lived near by, because he had accused her of being a witch. She had gone away to live with her married daughter at another village, while the second wife went on living at home, and the husband used to spend his time alternately with each. After his violent death each wife accused the other one of having out of jealousy " sent the lion " to kill him !

The burial rites are among the most interesting of surviving native customs, and are still religiously carried out by all Low-Veld tribes. Among Ngonis, Swazis and Thongas, men and women alike are buried, if they happen to die at home, immediately behind the hut in which they have lived ; only a man who has owned stock is buried in the cattle or goat kraal. A fence is made from branches of the thorny umlahla-bantu (" the losing of the people ") and is put round the grave. When a chief dies, he is buried at dead of night in the cattle kraal, by a few of his *indunas*, who afterwards make a mound of earth some distance away, and pretend that it is

there the chief is buried. A man without any relatives is buried inside his hut.

The hut of a deceased person is never used again; immediately after the funeral, the grass crown is removed from the apex, and is thrown away, as a sign that the owner is dead, and the hut is afterwards left to fall to ruin. All property, such as sticks, clothes and food, that was in the deceased's hut, is buried with him or her. Cooking and drinking utensils are broken and laid outside the grave; the assagais are snapped in two, the shafts placed in the grave, but the heads kept, and handed to the deceased's eldest son, to be used by him, or, if there be no son, then to his eldest brother. Should a person die away from home, the same ritual is observed; the cap removed from the hut, and the possessions buried in a grave dug behind it, or in the cattle kraal, as though the owner had died there. If a man makes it his last request that he be buried inside his hut, his wishes are complied with, and it is allowed to fall to ruin on top of the grave. This desire is usually expressed when "the family medicine is not strong." A fowl's throat is cut, and its blood, together with some of its feathers, is sprinkled on the grave. So far, the customs are common to all the Low-Veld tribes; but, among the Thongas, a hole is broken through the wall of the hut opposite the doorway, and, through this, both body and possessions are removed to the grave. Among the Swazis and Zulu-Ngonis, on the other hand, they are taken out by the ordinary door.

All chiefs are buried in a sitting posture, and facing east. Common people are placed in a prone position, by the Swazis and Ngonis facing east like chiefs, by the Thongas facing west. It is the greatest possible sacrilege to touch any of the things which ritual says must be laid outside the grave; the spirit of the departed will punish such a crime with death. It is acute defilement to touch a dead body; only certain relatives of the deceased, or, in the case of a chief, his principal *indunas*, may do so, and certain purificatory rites must subsequently be gone through. It is therefore most difficult to dispose of the remains of a native who happens to be killed or to die away from his home and relatives. The writer has seen a man, after having

inadvertently touched a corpse, fall down on the ground writhing, and screaming out that the *madumula* had got hold of him! The body of the native policeman—Mafuta—who had been killed in an encounter with a lion, lay for two days before it was found, and by that time the vultures had picked the bones clean. Nevertheless, his comrades, none of whom happened to be related to him, would not touch the remains, and they could be removed only through the timely arrival on the scene of some offenders against the pass law, who, hailing from Portuguese territory, and belonging to another tribe, were not deemed worthy of consideration.

Immediately upon a death having occurred, the women commence wailing, and their long-drawn-out, plaintive cries continue almost uninterruptedly until the funeral, and each succeeding day, for about twenty minutes, during the whole period of mourning. The customs connected with the latter are rigorously observed. When one of his wives has died, a man discards his head ring, in the case of his principal wife for two years, and of any lesser ones for one year. If he is a Thonga, and does not happen to be wearing a head ring, he shaves his head; but the Swazis and Ngonis cut a lane through the middle of their hair, or merely rub black dust into it. Men of the last-named tribes wear as mourning necklaces and girdles of woven grass. They put away all ornaments, and use only old clothes. Swazi and Ngoni widows shave their heads, and wear skull-caps and necklaces of plaited grass, for a period varying from six to twelve months: white is their mourning colour.

Among the Thongas, both widowers and widows place twisted palm leaves round their arms and necks, and the widows wear them round their heads as well. The women continue thus for a whole year; but the men for a short time only. A widow keeps her head shaved for a year, and wears a handkerchief tied round and over it; she wears dark-coloured garments during the whole mourning period of nearly two years, besides a string tied round her neck, to show that "the road is closed." On the mourning period being concluded, she cuts the string, and puts on the brightest raiment

GROUP OF THONGA WOMEN

NGONI HEADMEN AND ATTENDANTS

The former are wearing the Zulu head-ring

she can obtain. The other relatives of the deceased cut a small patch of hair above the forehead, and keep it thus clipped for one year. Sometimes a daughter weaves palm leaves round her head and cuts her hair into strips. If she is a married woman, her husband will, when he thinks she has mourned long enough, remove the headdress, after which she will consider herself out of mourning. Among the M'mbayis the men follow the Swazi mourning customs, while the women cut their hair short, without actually shaving it off, and tie a grass rope round their heads.

I once was present at a Thonga funeral, when it happened that the man had asked to be buried inside his hut. The corpse lay on a mat, and at sunset all the women relatives assembled inside, keeping up a continuous wailing, while they dug the grave under the floor ; the men meantime sat outside and drank beer. At midnight the body was interred by the women ; the wailing, which had gone on from sunrise on the previous day, ceased, and the cap was taken off the hut.

Funeral customs of course vary slightly in different clans even of the same tribe ; but all bear a strong family likeness to one another. Should none of a dead person's relations be present at the funeral, it is etiquette not to bury the possessions in the grave, but to lay them above it, having first broken the assagai shafts and the pots in the usual manner.

The above condensed account of traits and customs of the tribes of the Low-Veld, incomplete as it necessarily is, may yet serve to indicate how complicated is the social life which civilization is so rapidly obliterating. In safety of personal property and life, the native has benefited greatly by the rule of the white man, but it seems a pity that this protection should imply the complete destruction of all his time-honoured and interesting social organization, without giving him anything suitable in its place. There are signs that the more intelligent among the white people of South Africa are beginning to reconsider their ideas in regard to the native races, even if there be still a tendency to regard them as for ever hewers of wood and drawers of water, and to label all efforts towards their intellectual advancement as " dangerous." A policy

of attempted perpetual repression would, however, ultimately be still more dangerous.

Since education must inevitably spread among the natives, even of the Low-Veld, great efforts should be made to ensure that it is of a right and healthy kind. That there are potential dangers in the present system is undeniable. Masses of men, no less than individuals, will contentedly accept what they are accustomed to, however lowly their lot; but if once told they are being exploited, no matter how well off they actually may be, ignorant people immediately become discontented. Therefore to stir up unrest among the ignorant is always easy, no matter how unpromising the ground, provided the agitators are clever at their work. Any nonsense, repeated often enough, will end by being believed. The writer once heard a "raw" native sum up his view of the present position thus:

"The lion has taken the whole carcass, and the poor jackals are hanging round, and occasionally getting a scrap the lion does not want. Yet he sometimes turns round and bites them to make them drop even that small scrap."

By all ye cry and whisper,
By all ye leave or do,
The silent, sullen peoples
Shall weigh your gods and you.

CHAPTER XV

CONCLUSION

Present conditions—Native problems—White settlers—The future of the Low-Veld

At present more than one third of the Low-Veld land is the property of various large land companies having their offices in Johannesburg; of private owners who are mostly recently arrived settlers, and who struggle gallantly, if with no marked success, to wrest a livelihood from the soil; of the Government, which retains a decreasing amount of still unallotted ground inhabited by native squatters. A few farms have been purchased as holiday resorts, or as shooting boxes by non-residents, who visit them for a few months each year during the cool weather. The companies undertake a little development in the more promising places, but, generally speaking, their object is to sell their land at the best available prices to potential farmers and to sportsmen. The Government land is gradually being disposed of to white farmers, or is being made available for native use only. Less than one sixth of the Low-Veld has so far been set aside as locations, or reserved areas, wherein the blacks, so far as possible under their own chiefs, may lead a sort of emasculated tribal life.

There is a considerable difference between a "location" and an "area." In the first, the natives own the land; in the latter, though it is temporarily reserved for their exclusive use, they rank merely as squatters, and the Government is the landlord.

The remainder of the country, amounting to about the half of it, only very limited portions of which are suitable for human settlement, constitutes a great nature sanctuary, sparsely inhabited by natives, and devoted to the preservation of the indigenous fauna and flora under natural conditions.

Such an arrangement is unlikely to be permanent. Free from their old incubuses of war and famine, the natives are increasing in numbers from year to year; already there is barely enough land in the locations to accommodate them under their present primitive and wasteful methods of agriculture, which they will be slow to change; the reserved areas are crowded almost to the limit; compulsory stock-dipping has greatly extended the size of their flocks and herds. Some day they must overflow from these places, either as farm workers, on to the land in white occupation to which they are opposed, or into the last stronghold of Transvaal wild life, which, for obvious, if ephemeral, motives they eagerly desire.

The Thonga tribesmen, when economic conditions force them out to work for the white man, display a natural bent for mechanical industries—mining, railway, and factory work. They will voluntarily, even readily, flock to such employment, and they have no objection to domestic service, but it requires some compulsion to induce them to become farm hands. Unfortunately it is just in that industrial work, for which they seem best adapted, and which might thus serve to absorb their superfluous numbers, that they meet the policy which seeks, as far as possible, to provide employment for the large and increasing section of the white population which, with no occupation and in a destitute condition, has in recent years drifted off the land into the larger towns of the Transvaal. On the other hand, there is plenty of room on the private farms, and the farmers as a rule would be glad to welcome the natives as permanent tenants. Indeed it is an anomaly that, in the neighbourhood of a large indigenous native population, some of the landowners in the Middle- and Low-Velds are obliged to employ Swazis, and even " boys " from Nyasaland.

There are various reasons to explain why the Thonga dislikes working on the land for a foreign master, though he has no objection to serving the latter in other occupations. In the first place, agriculture is not regarded as work for men, but for women, and he prefers employment of a nature, in his opinion, suitable to his own sex. Like most other Bantu peoples, the

Thongas are usually suspicious of any new legislation affecting them, and at present they undoubtedly find distasteful portions of recent land laws framed in the main for their benefit. The old system of kaffir farming was indefensible ; but they had become to a certain extent accustomed to the injustice, and at all events it left a man free to hire out his own labour when and where he desired. The present law lays down that native tenants of farms in white occupation must perform ninety days' work per year, without pay, for the farmer, in return for which they are exempted from payment of any rent or other monetary obligation to him. The Government poll tax of £1 per annum for each adult male must, however, be paid. A native squatting on Government ground, in addition to the £1 poll tax, has to pay £1 10s. yearly for rent, and a 10s. grazing fee for each five head of cattle over ten, which may be his property.

The dweller in a proclaimed location, wherein native rights to the land are legally confirmed, pays the poll tax like the others, and also 10s. for each wife up to four, this last tax being devoted to improvements for his benefit, education and so forth. At the end of his ninety days' work, the farm tenant finds himself without money, and owing the Government £1, whereas the squatter on Government ground, or the location dweller, if he has hired himself out to work for pay, can in the same time easily earn from £6 to £12, so that after having paid all his dues, which seldom amount to more than £4, he has a fair sum of money at his disposal.

No doubt the farm tenant would accept his position more cheerfully were the ninety days' free labour which he has to provide invariably consecutive, as no doubt it was intended they should be ; but all farmers have not the same methods. For instance, as a native once put it to me : " The white man makes me work on the farm for two or three weeks, and then says he will call me when he wants me again. I go home and wait, and perhaps in two months' time he sends for me again for a few weeks, after which I go back and again wait to be called up to finish my time. Therefore it is hard for me to get away and earn money by work in a town where the pay is

good. Also it sometimes happens that when I want my wife to go out and hoe the fields for me after rain, the white man calls up the whole family to come and cultivate his tomatoes or cotton, and so my own crop suffers." This is, perhaps, an exceptional case, but there is no doubt that whereas some farmers are very popular personally with their natives, others are the reverse, and may even have so elastic an idea of what constitutes ninety days, that disputes arise with the tenants who have meticulously notched each day worked on a convenient stick.

The following may serve to illustrate how Thongas resent any sudden innovation. A few years ago, a well-known and successful farmer, respected and liked by the natives, purchased from a land company a new farm distant about eighty miles from his old one, largely with the object of making use as farm hands of the considerable number of natives resident on the former. These people had previously been accustomed to pay rent (kaffir farming) to the company's agent. The farmer saw the natives, and explained that he wanted them to contribute each ninety days' free labour working on the cotton lands on the old farm. One and all refused to go, saying they would willingly pay rent, or, alternatively, did not mind working near where they lived, but that they did not want to go to a distant farm where they would be among people not of their own tribe.

The owner, as he was by law entitled to do, at once gave them notice to quit the farm upon which some of them had lived for many years. The sub-native commissioner of the district, to whom they went asking to be given a new site, told them he could not legally allow them to squat anywhere on a rent-paying basis, and as there was at that time no native area available in the district, their only alternative was to remove to the farm of some other white man. Thereupon, all the natives, amounting, with women and children, to several hundreds, packed up their belongings, and emigrated to Portuguese territory.

About a year later the writer happened to meet one of the men who was visiting the Transvaal Low-Veld on business of

some kind, and asked him how he was getting on. "Not too well," he replied; "we don't like it; but when people are not fairly treated in one place, the only thing to do is to go and live somewhere else." Of course these natives would have been much better off had they stayed where they were, and eventually they began to realize this, and after a couple of years across the border they began to trickle back again, and to settle down under the new system.

Although the taxes are a little higher, especially if he has cattle, than they are in the other lines of rural life open to him, there is no doubt the Thonga greatly prefers being a squatter on Government ground to being either on a private farm or in a location. It is more like the old life of tradition; he can shift his kraal where he likes as soon as he has exhausted the old soil; there is plenty of room; he is a free man, and he can usually cut down or ring the timber, burn the grass, and kill the game, if there is any, without much risk of interference. He has to pay a licence for each dog he keeps, but in effect he does not pay for one in five; it is not very difficult to acquire and keep concealed an unlicensed rifle; there is even a chance of evading the taxes.

The native commissioners have neither the time nor the means to acquire more than a superficial knowledge of their Low-Veld areas, which they never visit except during a stately tax-collecting tour at the best time of the year. Their duties are, in fact, confined to tax-gathering, and to trying such cases and disputes as may be brought before them for settlement. The country constabulary are few in number, in fact ludicrously insufficient for the huge areas which each post has to look after. Consequently the native squatter leads a very easy and uncontrolled life, and is envied by his less fortunate compatriots. But the unallotted Government land is shrinking year by year, as it is given out to white settlers, or devoted to special purposes. The small location areas are even now becoming overcrowded. Soon there will be no available land except the private farms, upon which the native may find a home.

The Government which came into power in the Union of

South Africa in 1925 announced that they had formulated a native policy, calculated to settle for all time the vexed question of black and white, and that it was based upon the segregation of the former in areas, where, free from any undesirable contact with the white man, they would be able to develop in their own way. The news was received everywhere with satisfaction, especially by those who did not know much about actual conditions in tribal districts.

It is now becoming clear that while it is one thing to talk about segregation, it is quite another to put it into practice. The first consideration is to find suitable places for the purpose. Obviously they must be spots unfitted owing to their unhealthiness or other reasons for white settlement. Such country as the Low-Veld, malarious, hot, and, up to now, not specially productive, would seem ideal so far as the local natives are concerned. More than half of it is, however, not fit even for natives to prosper in, and most of the rest is gradually being taken up by whites. Before the last-named condition arose, various Commissions had reported on the desirability of one area or another for exclusive native settlement. None of the suggestions bore fruit. It is really very difficult to name any piece of country at all, except one absolutely barren and waterless, as being suitable for a native reserve, without producing an outcry among one section or another of the local white community, to the effect that " the best bit of land in the district is being alienated for kaffirs, to the detriment of white settlement."

The mere word " segregation " as a universal cure-all seems to exercise a kind of hypnotic effect upon many of those who use it. As sometimes understood in country districts, the term seems to imply a mysterious, far-away place, where the surplus native population may be dumped without regard to tribal or other distinctions, to remain peaceably, like herded cattle, until wanted. No one, however, can agree with his neighbour just where that place should be. It does not, in fact, now exist.

Some years ago the writer accompanied Colonel Deneys Reitz, at that time Minister of Lands for the Union, to meet a

deputation of farmers representing a section of the Barberton District. A petition was presented praying that a small portion of the Low-Veld, then occupied by about two thousand natives, should be cleared of their presence and of that of their stock, and the land handed over to the local farmers whose property abutted. Asked where they proposed to place the evicted natives, the deputation promptly answered that north of the Sabi River, in the neighbouring district of Pilgrim's Rest, there existed a large block of Government ground, which offered an obvious solution. Colonel Reitz smiled, and said it might surprise them to learn that he had already received another deputation representing farmers whose land adjoined the area of Pilgrim's Rest to which they had referred; that that deputation viewed with concern the rumour that certain land in their neighbourhood was to be made into a native reserve, and had suggested that the natives should be removed therefrom, and settled in the very same portion of Barberton District which formed the subject of the present petition. To satisfy the wishes of both deputations, it would be necessary, he remarked, "to suspend the native, like Mohammed's coffin, 'twixt heaven and earth!"

Quot homines, tot sententiæ! Most people in the country, and practically all residents in native areas, have their own private and quite definite ideas about what ought to be done with the natives. Yet between the paths beset with pitfalls pointed out by the "damned nigger man" and the "equal rights man," as Professor Brooke terms these extreme exponents of contrasting policies, must surely lie some way of egress from the quagmire in which native land policy at present flounders. Subversive propaganda, with its artificial stimulation of grievances, has as yet hardly touched the Low-Veld native; but he is rapidly acquiring civilized ideas, and for the sake of the ruling race, no less than for his own, it would be wise to eliminate any legitimate causes of complaint which he may hold, as speedily as possible.

All thinking South Africans recognize the vital importance of the native land problem; and governments, to whatever political party they belong, unite in striving to find some

satisfactory solution ; but legislation, at least so far as the Low-Veld is in question, is often hampered by the land hunger of some of the resident white settlers, as well as by the " poor white " problem, which ranks second only to that offered by the natives. Whether in industry or on the land, plans for disposing satisfactorily of indigent whites on the one hand, and blacks on the other, are in constant opposition, and the statesman who is able to bring about an enduring settlement will deserve all his country can offer him.

The white settler is so recent an arrival in the Low-Veld that it is not yet clear whether he is anything more than a mere bird-of-passage therein. At any height lower than even two thousand feet above the sea, altitude and latitude combine, as pointed out in a previous chapter, to produce a climate far from conducive to the development of a virile nordic race, even supposing the malarial menace to be successfully overcome. In the event of any really permanent large scale development occurring, the white man would appear more adapted to the rôle of temporary overseer of native labour than to that of permanent resident, accompanied by wife and family. The influx of the latter type is, however, constantly increasing, and at least a generation must pass before the result of the experiment becomes apparent. Meantime the land question, as between blacks and whites, is likely ever to become more acute.

What, then, does the future hold for the Low-Veld ? What will it look like, and who will be its inhabitants in, say, one hundred years from now ? During the last century and a half it has passed successively from being a settled and comparatively peaceful community of small native clans, through a period of frightful anarchy and bloodshed, to its present condition of outwardly seeming stability under the white man's rule. It is not to be expected that the changes in the next hundred years will be less than they have been in the last. The whole of the Low-Veld is indeed changing fast, even now, before our very eyes, and much of it is losing its old charm. Even that great Nature sanctuary, the Kruger National Park—so long, as the Sabi and Shingwedsi Game Reserves, solitary

and aloof—is being opened up by a network of roads, designed to afford access to the travelling public, and to give sightseers a glimpse of its wild life. Still a land of virgin forest and bush, of wild hills and reed-fringed streams, its wild life unconcernedly busy with the daily task, its natives living much as they have always done, the ancient atmosphere yet remains ; in it, at least, the Spirit is still present.

Only the least imaginative can fail to be impressed with the dignity of Nature as there expressed, or to contrast it with the spectacle often presented by an area in process of development, with its dusty bare expanses, littered with pieces of old rags, broken bottles, empty tins and refuse of every kind, its hideous corrugated iron shanties, and its acres of pathetic and unlovely tree-stumps. Change and evolution ! They are Nature's first laws ; nothing may stagnate and still endure ; but let us see to it that the changes are healthy, that the evolution proceeds on the right lines, that in our process of artificial development we do not so try to improve upon Nature as to mar her fair works. Above all, let us not confuse progress with sordid commercial exploitation, as, alas ! is too often the case.

Let us, then, so far as in us lies, make it our duty to hand on this heritage of wild spaces and splendid animals intact to posterity. Thus alone may the South African of the future know his country as it was before civilization seized it, and tore away its romance. The Low-Veld resembles the vanished Bushmen, who once made it their hunting ground, in that it may be destroyed, but can never be truly tamed. It will never submit to be the docile adopted child of a utilitarian Western civilization. There is no middle course. Either it must remain Nature's enchanted garden, or, its finest fauna and flora all destroyed, its streams dried up, its Spirit fled, it will lie like a discarded shell, a repellent wilderness of rock and ever-spreading sand, scorched by the burning sun. Outraged Nature will quickly complete the destruction begun by man.

May nothing ever occur to make this last picture a reality of the future ; may Nature rest undisturbed ; the old charm endure ; the guardian Spirit continue to cast her mysterious spell over her loved Low-Veld !

APPENDIX

FAUNA AND FLORA OF THE LOW-VELD

WHILE a book such as this would not be complete without the addition of some reference list of the animals and plants found in the area dealt with, the following lays claim to be no more than a partial guide to Low-Veld wild life. Many existing types of the smaller mammals undoubtedly still await identification, and much yet remains to be done among the birds, especially in regard to the recognition of species present only during the hot weather. The Low-Veld is a meeting-ground between essentially tropical birds, and those which are typically South African. Some are winter migrants from the colder parts of the sub-continent, others are summer visitors from Central Africa. Systematic collections have usually taken place during the healthy season, and, in consequence, probably all the hot-weather residents have not yet been identified.

As regards forms of animal life other than mammalian and avian, the field is so vast that not much more than its boundaries have yet been fully explored, and therefore no enumeration of types is attempted here.

The assigning of the correct scientific term to any animal, especially to a mammal, is no easy task nowadays. For some years a sort of competition has been in progress between leading systematists, with the object of discovering and conferring the oldest, and, therefore, the correct name in each individual case, and there has been a minute splitting of species and even of genera. Nomenclature, therefore, has been constantly changing, with the result that the Latin designations, instead of facilitating the recognition of individual species, have tended rather to create a sense of confusion in the mind of the layman. In the following lists the writer has tried to be up to date by obeying authoritative *dicta*, and he desires to thank Captain Shortridge of the King Williamstown Museum,

and Mr. Austen Roberts of the Transvaal Museum, for their help in the naming of the large and the small mammals respectively. The birds have been named in accordance with Mr. W. L. Sclater's "Systema Avium Ethiopicarum," and the writer is deeply grateful to that gentleman for his great kindness and courtesy in affording access to the MS. of the work. The classification used in Professor T. R. Sim's "Native Timbers of South Africa" has been employed for the trees.

In all cases genera and species have been grouped under their families only.

FAUNA

MAMMALS

1. CERCOPITHECIDÆ

Papio porcarius ..... Chacma Baboon. Bobbejan.
Cercopithecus æthiops pygerythrus ... Vervet Monkey. Blouaap.
Cercopithecus labiatus albogularis .... Sykes Monkey. Samangoaap.

2. GALAGIDÆ

Otolemur crassicaudatus ..... Bushbaby. Nagaap.
Galago moholi ..... Small Bushbaby. Nagaapie.

3. MACROSCELIDIDÆ

Nasilio brachyrhynchus ..... Bushveld Elephant Shrew. Bosveld Klaasneus.

4. PTEROPODIDÆ

Epomophorus wahlbergi ..... Epauletted Fruit Bat. Vliegendevos.
Epomophorus crypturus ..... Smaller Epauletted Fruit Bat. Vliegendevos.

5. RHINOLOPHIDÆ

Rhinolophus geoffroyi zuluensis..... Zulu Augur Bat. Soeloe Grootvlermuis.
Rhinolophus simulator ..... Lesser Leaf-Nosed Bat. Kleine Grootvlermuis.
Rhinolophus swinnyi ..... Swinney's Leaf-Nosed Bat. Swinnyse Grootvlermuis.
Rhinolophus lobatus ..... Saddle-Faced Bat. Saalneus Vlermuis.
Rhinolophus darlingi barbertonensis .. Barberton Leaf-Nosed Bat.

6. HIPPOSIDERIDÆ

Macronycteris commersoni marungensis Commerson's Bat. Groot Kortoor-Vlermuis.
Hipposiderus caffer ..... Cape Horseshoe Bat. Kortoor-Vlermuis.

Cloeotis percivalli australis..... Percival's Bat. Kleinste Kortoor-Vlermuis.

7. PETALIIDÆ

Petalia capensis..... Cape Long-Eared Bat. Kaapse Langoor Vlermuis.

8. VESPERTILIONIDÆ

Glauconycteris papilio..... Buffy Butterfly Bat. Flinder-Vlermuis.

Myotis tricolor ..... Tricoloured Bat. Rooi-Vlermuis.

Kerivoula nidicola ..... Woolly Bat. Wolagtig-Vlermuis.

Pipistrellus nanus ..... Tropical Palm Bat. Palm-Vlermuis.

Romicia kuhli fuscatus..... Kuhl's Bat. Kuhlse-Vlermuis.

Eptesicops rustica ..... Rusty-coloured Bat. Roesagtig-Vlermuis.

Eptesicus capensis gracilior ..... Lesser House-Bat. Kleine Dak-Vlermuis.

Scoteinus schlieffeni australis..... Schlieffen's Bat. Schlieffense-Vlermuis

Scotophilus nigrita dingani ..... Yellow Bat. Geel-Vlermuis.

Miniopterus natalensis ..... Natal Sociable Bat. Gesellige-Vlermuis.

Miniopterus fraterculus ..... Knysna Sociable Bat. Gesellige-Vlermuis.

9. MOLOSSIDÆ

Chaerophon pumilus elphicki..... Little Free-Tail Bat. Kleine Vrystert-Vlermuis.

10. EMBALLONURIDÆ

Taphozous mauritanus ..... Tomb Bat. Tombe-Vlermuis.

11. LEPORIDÆ

Pronolagus ruddi..... Red Hare. Rooi-Haas.

Lepus zuluensis ..... Zulu Hare. Soeloe-Haas.

12. SCIURIDÆ

Paraxerus cepapi..... Grey-Footed Squirrel. Geelpoot Eekhorinkie.

Paraxerus palliatus..... Red-Headed Squirrel. Rooikop Eekhorinkie.

13. GRAPHIURIDÆ

Gliriscus eastwoodæ ..... Eastwood's Dormouse. Eastwoodse Wolstertmuis.

Claviglis streeteri ..... Streeter's Dormouse. Streeterse Wolstert-muis.

Claviglis nanus ..... Least Dormouse. Kleinste Wolstert-muis.

Claviglis tzaneenensis ..... Tzaneen Dormouse. Tzaneen Volstert-muis.

14. GERBILLIDÆ

Tatera lobengulæ salsa ..... Letaba Gerbille. Springhaas-muis.

15. MURIDÆ

Otomys laminatus ..... Rusty Water Rat. Roestagtig Vleimuis.

Steatomys pratensis ..... Fat Mouse. Vetmuis.

Dendromus ayresi ..... Ayres' Climbing Mouse. Klimmuis.

Dendromus jamesoni ..... Jameson's Climbing Mouse. Klimmuis.

Dendromus longicaudatus ..... Long - Tailed Climbing Mouse. Langstert -Klimmuis.

Dendromus nigrifons vulturnus ..... Black - Fronted Climbing Mouse. Swartbles-Klimmuis.

Cricetomys gambianus haagneri ..... Giant Rat. Reuse-Rot.

Saccostomus campestris ..... Zambezi Pouched Mouse. Wangsak-Muis

Saccostomus streeteri ..... Streeter's Pouched Mouse. Wangsak-Muis.

Leggada bella marica ..... Beira Dwarf Mouse. Dwerg-Muis.

Acomys transvaalensis ..... Transvaal Spiny Mouse. Stekel-Muis.

Lemniscomys calidior ..... Striped Mouse. Streep-Muis

Thallomys moggi acaciæ ..... Acacia Rat. Akasia-Rot.

Praomys namaquensis arborarius ..... Namaqua Rat. Namakwa-Muis.

Æthomys chrysophilus tzaneenensis ... African Rat. Afrikaanse-Rot.

Mastomys coucha natalensis ..... Natal Multimammate Rat. Vaal-Veldmuis.

Mastomys coucha limpopoensis ..... Limpopo Multimammate Rat. Vaal-Veldmuis.

Dasymys incomtus ..... Peters Water Rat. Water-Rot.

16. BATHYERGIDÆ

Cryptomys vandami ..... Van Dam's Mole-Rat. Van Damse Grysmol.

Cryptomys pallidus ..... Pallid Mole-Rat. Bleek Grysmol.

Cryptomys melanoticus ..... Melanotic Mole-Rat. Swartagtig Grysmol.

Cryptomys rufulus ..... Rufous Mole-Rat. Roesagtig Grysmol.
Cryptomys stellatus ..... Lebombo Rufous Mole Rat. Roesagtig Grysmol.

17. HYSTRICIDÆ

Hystrix africæ-australis ..... South African Porcupine. Ystervark.

18. PEDETIDÆ

Pedetes caffer salinæ ..... Spring Hare. Springhaas.

19. THRYONOMIDÆ

Thryonomys swinderianus variegatus . Canerat. Rietmuis.

20. MANIDÆ

Smutsia temminckii ..... Scaly Anteater. Eitermago.

21. RHINOCEROTIDÆ

Diceros bicornis ..... Black Rhinoceros. Swartrenoster.

22. EQUIDÆ

Hippotigris quagga transvaalensis ..... Burchell's Zebra. Bosveld Quagga.

23. PROCAVIDÆ

Procavia capensis natalensis ..... Natal Dassie. Natal Das.
Heterohyrax brucei granti ..... Grant's Dassie. Grantse Das.
Heterohyrax brucei ruddi ..... Limpopo Dassie. Limpopo Das.

24. ORYCTEROPODIDÆ

Orycteropus afer ..... Antbear. Erdvark.

25. ELEPHANTIDÆ

Elephas africanus selousi ..... African Elephant. Olifant.

26. HIPPOPOTAMIDÆ

Hippopotamus amphibius australis .... Hippopotamus. Seekoei.

27. SUIDÆ

Potamochœrus chœropotamus maschonæ Bushpig. Bosvark.
Phacochœrus æthiopicus sundevalli .... Warthog. Vlakvark.

28. PELLICORNIDÆ

Giraffa camelopardalis wardi ..... Giraffe. Kameel.

29. CAVICORNIDÆ

Bos caffer limpopoensis ..... Buffalo. Buffel.
Gorgon taurinus ..... Blue Wildebeest. Blou Wildebees.
Damaliscus lunatus ..... Tsessebe. Baster Hartebees.
Hippotragus equinus ..... Roan Antelope. Baster Gemsbok.
Hippotragus niger ..... Sable Antelope. Swartwitpens.
Cobus ellipsiprymnus ..... Ringed Waterbuck. Kringgat.

Redunca arundinum ..... Reedbuck. Rietbok.
Redunca fulvorufula ..... Mountain Reedbuck. Rooi-Rhebok.

Aepyceros melampus ..... Impala. Rooibok.
Oreotragus oreotragus transvaalensis .. Klipspringer.
Ourebia ourebi ..... Oribi. Ourebietjie.
Nototragus sharpei colonicus ..... Sharpe's Steenbuck. Grysbok.

Rhaphiceros campestris rufescens ..... Steenbuck. Steenbok.
Taurotragus oryx selousi ..... Eland.
Strepsiceros strepsiceros zambesiensis .. Kudu. Koedoe.
Nyala angasi ..... Nyala.
Tragelaphus sylvaticus roualeyni..... Limpopo Bushbuck. Bosbok.

Sylvicapra grimmia transvaalensis .... Transvaal Duiker. Duikerbok.

Cephalophus natalensis amœnus ..... Red Duiker. Rooi Duikerbok.

30. CANIDÆ

Thos adustus ..... Side-Striped Jackal. Donker Jakkals.

Thos mesomelas ..... Black-Backed Jackal. Rooi-Jakkals.

Lycaon pictus venaticus ..... Hunting Dog. Wilde-Hond.

31. MUSTELIDÆ

Mellivora capensis..... Honey Badger. Ratel.
Aonyx capensis coombsi ..... Clawless Otter. Groot Otter.
Lutra maculicollis ..... Spotted-Necked Otter. Klein Otter.

32. VIVERRIDÆ

Civettictis civetta orientalis ..... Civet. Sivetkat.
Genetta ludia ..... Small - Spotted Genet. Kleinvlek Muskejaatskat.

Genetta rubiginosa ..... Rusty-Spotted Genet. Rooivlek Muskejaatskat.

Herpestes caffer sabiensis ..... Sabi Ichneumon. Grysmuishond.

Galerella cauui..... Slender Mongoose. Rooi Muishond.

Rhynchogale melleri..... Meller's Mongoose. Mellerse Muishond.

Ichneumia albicaudatus grandis ..... Giant Mongoose. Wistert Muishond.

Atilax paludinosus rubellus ..... Water Mongoose. Kommetjiegat.

Helogale parvula parvula ..... Wahlberg's Mongoose. Bruin Muishondjie.

Helogale parvula brunnula ..... Letaba Mongoose. Bruin Muishondjie.
Mungos mungo ..... Banded Mongoose. Gebande Muishond.

33. HYÆNIDÆ

Hyæna brunnea ..... Brown Hyena. Strandwolf.
Crocuta crocuta weissmanni ..... Spotted Hyena. Gevlekte Wolf.

34. FELIDÆ

Felis ocreata rusticana ..... Kaffir Cat.
Felis pardus ..... Leopard. Tier.
Felis serval limpopoensis ..... Serval.
Felis leo ..... Lion. Leeu.
Caracal caracal coloniæ ..... African Lynx. Rooikat.
Acinonyx jubatus ..... Chita or Hunting Leopard. Luiperd.

35. CHRYSOCHLORIDÆ

Ablysomus hottentotus garneri ..... Swazi Golden Mole.

36. CROCIDURIDÆ

Suncus gratula ..... Termite Shrew. Meershoop Skeerbekmuis.
Crocidura flavescens ..... Greater Red Shrew. Groot Rooi-Skeerbekmuis.
Crocidura hirta flavescens ..... Lesser Red Shrew. Klein Rooi-Skeerbekmuis.
Crocidura pilosa ..... Brown Shrew. Bruin-Skeerbekmuis.
Crocidura silacea ..... Ashy Shrew. Grys-Skeerbekmuis.

BIRDS

* Birds marked thus are migrants or occasional visitors only.

1. STRUTHIONIDÆ

Struthio camelus australis ..... Southern Ostrich.

2. PODICIPIDÆ

Podiceps cristatus infuscatus ..... Great Crested Grebe.
Poliocephalus ruficollis capensis ..... Little Grebe or Dabchick.

3. PHALACROCORACIDÆ

Phalacrocorax africanus africanus ... Reed Duiker.

4. ANHINGIDÆ

Anhinga rufa rufa ..... Darter or Snake Bird.

5. ARDEIDÆ

Ardea cinerea cinerea ..... Grey Heron.
**Ardea goliath* ..... Goliath Heron.
**Pyrrherodia purpurea purpurea* .... Purple Heron.
**Casmerodius albus melanorhynchus* ... Great White Egret.

Mesophoyx intermedius brachyrhynchus	Yellow-Billed Egret.
**Egretta garzetta garzetta*	Little Egret.
**Erythrocnus rufiventris*	Rufous-Bellied Heron.
**Butoridea striatus atricapillus*	Green-Backed Heron.
Nyctorax nystorax nyctorax	Night Heron.
Ardeirallus sturmii	African Dwarf Bittern.
Scopus umbretta bannermani	Hammerkop.

6. CICONIIDÆ

**Ciconia ciconia ciconia*	White Stork.
**Ciconia nigra*	Black Stork.
**Sphenorhynchus abdimii*	White-Bellied Stork.
Ephippiorhynchus senegalensis	Saddle-Bill.
**Leptoptilos crumeniferus*	Marabou.

7. PLEGADIDÆ

**Threskiornis æthiopicus*	Sacred Ibis.
Hagedashia hagedash	Green Ibis or Hadada.
**Plegadis falcinellus*	Glossy Ibis.

8. ANATIDÆ

**Nyroca erythropthalma*	South African Pochard.
**Anas sparsa*	Black Duck.
**Anas punctata*	Hottentot Teal.
**Dendrocygna viduata*	White-Faced Duck.
**Alopochen ægyptiacus*	Egyptian Goose.
**Sarkidiornis melanotus*	Knob-Billed Goose.
**Pectropterus gambensis niger*	Spur-Winged Goose.

9. SAGITTARIIDÆ

Sagittarius serpentarius	Secretary Bird.

10. ÆGYPTIDÆ

Gyps coprotheres	Kolbe's Vulture.
Pseudogyps africanus	White-Necked Vulture.
Torgos tracheliotus tracheliotus	Lappet-Faced Vulture.
Trigonoceps occipitalis	White-Headed Vulture.
Neophron percnopterus percnopterus	Egyptian Vulture.
Necrosyrtes monachus pileatus	Hooded Vulture.

11. FALCONIDÆ

Falco biarmicus biarmicus	South African Lanner.
Falco peregrinus minor	South African Peregrine.
**Falco subbuteo*	Hobby.
Falco amurensis	Eastern Red-Legged Kestrel.
Falco chiquera horsbrughi	South African Red-Necked Kestrel.
Falco tinnunculus rupicolus	South African Kestrel.
Falco rupicoloides rupicoloides	Larger South African Kestrel.
Polihierax semitorquatus semitorquatus	South African Pigmy Falcon.
Aviceda cuculoides verreauxi	South African Cuckoo Falcon.

**Milvus migransparasitus*	Yellow-Billed Kite.
Elanus coeruleus	Black-Shouldered Kite.
Aquila rapax rapax	Tawny Eagle.
Aquila wahlbergi	Wahlberg's Eagle.
Hieraætus spilogaster	African Hawk-Eagle.
Hieraætus ayresi	Ayres' Hawk-Eagle.
Hieraætus pennatus	Booted Eagle.
Polemætus bellicosus	Martial Eagle.
Stephanoætus coronatus	Crowned Hawk-Eagle.
Lophætus occipitalis	Long-Crested Hawk-Eagle.
Kaupifalco mongrammicus meridionalis	Lizard Buzzard.
Circætus cinereus	Brown Harrier-Eagle.
Circætus pectoralis	Black-Breasted Harrier-Eagle.
Circætus fasciolatus	Banded Harrier-Eagle.
Terathopius ecaudatus	Bateleur.
Cuncuma vocifer	Fish-Eagle.
Buteo rufofuscus	Jackal Buzzard.
Accipiter minullus minullus	Little Sparrow-Hawk.
Accipiter ovampensis	Ovampo Sparrow-Hawk.
Accipiter rufiventris	South African Sparrow-Hawk.
Astur badius polyzonoides	Little Banded Goshawk.
Astur tachiro tachiro	South African Goshawk.
Melierax musicus	Chanting Goshawk.
Melierax gabar	Gabar Goshawk.
**Circus pygargus*	Montagu's Harrier.
**Circus macrourus*	Pale Harrier.
Gymnogenys typicus typicus	Harrier-Hawk.

12. TURNICIDÆ

Turnix nana	Natal Button-Quail.

13. PHASIANIDÆ

Francolinus coqui coqui	Coqui.
Francolinus sephœna sephœna	Crested Francolin.
Francolinus shelleyi shelleyi	Shelley's Francolin.
Francolinis natalensis natalensis	Natal Francolin.
Pternistis swainsoni	Swainson's Francolin.
**Coturnix delegorguei*	Harlequin Quail.
Numida mitrata coronata	Helmet Guinea-Fowl.
Guttera edouardi edouardi	Crested Guinea-Fowl.

14. RALLIDÆ

Rallus caerulescens	Kaffir Rail.
Limnocorax flavirostra	Black Crake.
Sarothrura lineata	Jardine's Crake.
Porphyrio madagascariensis	King Reed-Hen.
Gallinula angulata	Lesser Moor-Hen.
Fulica cristata	Red-Knobbed Coot.

APPENDIX

15. BALEARICIDÆ

**Bugeranus carunculatus* ..... Wattled Crane.

16. OTIDIDÆ

Choriotis kori ..... Gom Paauw.
**Neotis ludwigii* ..... Ludwig's Paauw.
Lophotis ruficrista ..... Red-Crested Knorhaan.

17. CHARADRIIDÆ

Stephanibyx coronatus ..... Crowned Lapwing.
Charadrius pecuarius pecuarius ..... Kitlitz's Sand Plover.
Charadrius tricollaris tricollaris ..... Three-Banded Plover.

18. SCOLOPACIDÆ

**Capella nigripennis*..... Ethiopian Snipe.
Rostratula benghalensis ..... Painted Snipe.
**Erolia minuta* ..... Little Stint.
**Actictis hypoleucus* ..... Common Sandpiper.
**Tringa totanus totanus* ..... Redshank.
**Tringa stagnatilis* ..... Marsh Sandpiper.
**Tringa nebularia* ..... Greenshank.
**Tringa glareola* ..... Wood Sandpiper.
**Numenius phæopus phæopus*..... Whimbrel.

19. GLAREOLIDÆ

**Cursorius temminckii temminckii* .... Temminck's Courser.
Glareola pratincola fulleborni..... Pratincole.

20. BURHINIDÆ

Burhinus capensis capensis ..... Dikkop.
Burhinus vermiculatus vermiculatus .. Water Dikkop.

21. JACANIDÆ

Actophilus africanus ..... Jacana.
Microparra capensis ..... Smaller Jacana.

22. PTEROCLIDIDÆ

Eremialector bicinctus multicolor ..... Double-BandedSandgrouse.

23. COLUMOIDÆ

Columba arquatrix arquatrix ..... Olive Pigeon.
Streptopelia semitorquata semitorquata Red-Eyed Dove.
Streptopelia capicola tropica ..... Ring-Necked Dove.
Stigmatopelia senegalensis æquatorialis Laughing Dove.
**Œna capensis capensis* ..... Namaqua Dove.
Tympanistria tympanistria tympanistria Tambourine Dove.
Turtur chalcospilos chalcospilos ..... Emerald Spotted Dove.
Aplopelia larvata larvata ..... Lemon Dove.
Vinago delalandii ..... Green Pigeon.

24. CUCULIDÆ

**Cuculus ca norus gularis* ..... African Cuckoo.
**Cuculus solitarius* ..... Red-Chested Cuckoo.
**Cuculus clamosus* ..... Black Cuckoo.
**Clamator glandarius* ..... Great Spotted Cuckoo.

**Clamator jacobinus*	Black and White Cuckoo.
**Clamator hypopinarus*	Black and Grey Cuckoo.
**Clamator cafer*	Levaillant's Cuckoo.
**Lampromorpha caprius*	Didric Cuckoo.
**Lampromorpha klaasi*	Klaas' Cuckoo.
Centropus senegalensis burchellii	Burchell's Coucal.

25. MUSOPHAGIDÆ

Turacus corythaix phœbus	Barberton Lourie.
Gallirex porphyreolophus porphyreolophus	Purple-Crested Lourie.
Corythaixoides concolor concolor	Goaway Bird.

26. PSITTACIDÆ

Poicephalus robustus	Brown-Necked Parrot.
Poicephalus meyeri transvaalensis	S. African Brown Parrot.

27. CORACIIDÆ.

**Coracias garrulus garrulus*	European Roller.
Coracias caudatus caudatus	Mosilekatze's Roller.
Coracias nævius mosambicus	Purple Roller.
**Eurystomus afer suahelicus*	Cinnamon Roller.

28. ALCEDINIDÆ

Ceryle rudis rudis	Pied Kingfisher.
Megaceryle maxima maxima	Giant Kingfisher.
Corythornis cristata cristata	Malachite Kingfisher.
Alcedo semitorquata	Half-Collared Kingfisher.
Ispidina picta natalensis	Pigmy Kingfisher.
Halcyon senegalensis cyanoleucus	Red - and - Blacked - Billed Kingfisher.
Halcyon albiventris albiventris	Brown-Hooded Kingfisher.
**Halcyon leucocephala swainsoni*	Grey-Headed Kingfisher.
Halcyon chelicuti chelicuti	Striped Kingfisher.

29. MEROPIDÆ

**Merops apiaster*	European Bee-Eater.
**Merops persicus persicus*	Blue-Cheeked Bee-Eater.
**Merops nubicus nubicoides*	Carmine Bee-Eater.
Melittophagus pusillus meridionalis	Little Bee-Eater.
Melittophagus bullockoides	White-Fronted Bee-Eater.

30. BUCEROTIDÆ

Bycanistes bucinator	Trumpeter Hornbill.
Laphoceros nasutus epirhinus	Grey Hornbill.
Laphoceros erythrorhynchus erythrorhynchus	Red-Beaked Hornbill.
Laphoceros flavirostris leucomelas	Yellow-Beaked Hornbill.
Laphoceros melanoleucus melanoleucus	Crowned Hornbill.
Bucorvus cafer	Ground Hornbill or Brom-Vogel.

31. UPUPIDÆ

Upupa africana	South African Hoopoe.

32. PHŒNICULIDÆ

Phœniculus purpureus marwitzi ..... Wood Hoopoe or Kakelaar.
Rhinopomastus cyanomelas ..... Scimitar-Bill.

33. TYTONIDÆ

Tyto alba affinis ..... Barn Owl.
Tyto capensis capensis ..... Grass Owl.

34. STRIGIDÆ

Asio helvola helvola ..... Marsh Owl.
Strix woodfordii woodfordii ..... Wood-Owl.
Otus capensis capensis ..... Scops Owl or Little Owl.
Otus leucotis leucotis ..... White-faced Scops Owl.
Glaucidium perlatum ..... Pearl-Spotted Owlet.
Glaucidium capense capense ..... Barred Owlet.
Bubo africanus africanus ..... Spotted Eagle-Owl.
Bubo lacteus ..... Verreaux's Eagle-Owl.

35. CAPRIMULGIDÆ

Caprimulgus fervidus ..... Fiery-Necked Nightjar.
Caprimulgus fossii fossii ..... Mozambique Nightjar.
**Cosmetornis vexillarius* ..... Pennant-Winged Nightjar.

36. MICROPODIDÆ

**Micropus apus apus* ..... Common Swift.
Micropus melba africanus ..... White-Bellied Swift.
**Micropus caffer caffer* ..... White-Rumped Swift.

37. COLIIDÆ

Colius striatus minor ..... Speckled Mousebird.
Colius indicus indicus ..... Red-Faced Mousebird.

38. TROGONIDÆ

Apaloderma narina ..... Narina Trogon.

39. CAPITONIDÆ

Lybius torquatus torquatus ..... Black-Collared Barbet.
Tricholæma leucomelas leucomelas .... Pied Barbet.
Buccanodon leucotis leucotis ..... White-Eared Barbet.
Pogoniulus bilineatus bilineatus ..... Golden-Rumped Tinker Bird.
Trachyphonus vailantii vailantii ..... Levaillant's Barbet.

40. INDICATORIDÆ

Indicator variegatus variegatus ..... Scaly-Throated Honey Guide.
Indicator indicator ..... Black-Throated Honey Guide.
Indicator minor minor ..... Lesser Honey-Guide.
Prodotiscus regulus regulus ..... Wahlberg's Honey-Guide.

41. PICIDÆ

Campethera abingoni ..... Golden-Tailed Woodpecker
Dendropicos fuscescens fuscescens ..... Cardinal Woodpecker.
Thripias namaquus namaquus ..... Bearded Woodpecker.

Mesopicos griseocephalus griseocephelus	Olive Woodpecker.
Jynz ruficollis ruficollis	Red-Breasted Wryneck.

42. HIRUNDIDÆ

**Hirundo rustica*	European Swallow.
**Hirundo albigularis*.....	White-Throated Swallow.
Hirundo dimidiata	Pearl-Breasted Swallow.
Hirundo smithii.....	Wire-Tailed Swallow.
Hirundo griseopyga.....	Grey-Rumped Swallow.
**Hirundo puella unitata*.....	Smaller Stripe-Breasted Swallow.
Hirundo atrocuerulea	Blue Swallow.
**Hirundo semirufa semirufa*	Rufous-Chested Swallow.
Psalidoprocne holomelæna holomæna...	Black Rough-Winged Swallow.
Riparia paludicola paludicola	South African Sand-Martin.
Riparia cincta cincta.....	Banded Sand-Martin.

43. LANIIDÆ

Urolestes melanoleucus melanoleucus...	Magpie or Long-Tailed Shrike.
**Lanius collurio*	Red-Backed Shrike.
Eurocephalus anguitimens	White-Crowned Shrike.
Tschagra senegala mozambica	Black-Headed Bush-Shrike.
Tschagra tschagra natalensis	Natal Tschagra Shrike.
Tschagra australis australis	Brown-HeadedBush-Shrike.
Dryoscopus cubla cubla.....	Cape Puff-Backed Shrike.
Laniarius atrococcineus	Black and Crimson Shrike.
Telephorus zeylonus zeylonus.....	Bacbakiri Shrike.
Telephorus quadricolor quadricolor	Four-Coloured Bush-Shrike.
Chlorophoneus rubiginosus rubiginosus	Rufous-Breasted Bush-Shrike.
Chlorophoneus sulphureopectus similis	Orange-Breasted Bush-Shrike.
Maloconotus poliocephalus hypopyrrhus	Grey-Headed Bush-Shrike.
Sigmodus retzii tricolor.....	Red-Billed Shrike.
Prionops poliocephala.....	Southern Helmet-Shrike.
Nilaus brubru	Southern Brubru.

44. PARIDÆ

Parisoma plumbrum orientale	Eastern Grey Tit.
Parus afer	Grey Tit.
Parus niger niger	Black Tit.
Anthoscopus caroli hellmayri	Grey Minute Tit or Cappoc-Vogel.

45. CAMPEPHAGIDÆ

Campephaga flava	Black Cuckoo Shrike.
Campephaga hartlaubi	Hartlaub's Cuckoo Shrike.
Grauculus pectoralis	White-Breasted Cuckoo Shrike.

APPENDIX

46. MUSCICAPIDÆ

Malæornis panumelaina panumelaina.	Black Flycatcher.
Bradyornis pallidus murinus	Mouse-Coloured Flycatcher.
Muscipapa striata striata	Spotted Flycatcher.
Alseonax adustus adustus	Dusky Flycatcher.
Chloropeta natalensis natalensis	Natal Yellow Flycatcher.
Smithornis capensis capensis	Cape Broad-Bill.
Trochocercus cyanomelas	Cape Crested-Flycatcher.
Tepitrea perspicillata perspicillata	Cape Paradise Flycatcher.
Batis fratrum	Zululand Flycatcher.
Batis capensis	Cape Puff-Backed Flycatcher.
Batis molitor molitor	Chin-Spotted Flycatcher.
Pletysteira peltataportata	Black-Throated Wattle-Eye.
Sigelus silens	Fiscal Flycatcher.

47. SYLVIIDÆ

Phylloscopus trochilus	Willow Warbler.
Acrocephalus bæticatus bæticatus	African Reed-Warbler.
Bradypterus bradypterus	Swamp Warbler.
Bradypterus barratta barratta	Barratt's Swamp Warbler.
Calamornis gracilestris	Slender-Billed Swamp Warbler.
Schœnicola apacalis	Fan-Tailed Warbler.
Eremomela griscoflava polioxantha	Swazi Yellow-Billed Warbler.
Eremomela rusticollis	Brown-Throated Bush-Warbler.
Eremomela scotops	Green-Capped Bush-Warbler.
Camaroptera brachyura	Glass-Eye.
Sylviella rufescens pallida	Stump-Tail or Crombec.
Seicercus ruficapilla ruficapilla	Yellow-Throated Flycatcher Warbler.
Apalis thoracica spelonkensis	Bar-Throated Warbler.
Calamonastes fasciolatus	Barred Wren-Warbler.
Cisticola aberrans aberrans	Smith's Grass-Warbler.
Cisticola tinniens tinniens	Levaillant's Grass-Warbler.
Cisticola terristris	Wren Grass-Warbler.
Cisticola galactotes galactotes	Buff-Fronted GrassWarbler.
Cisticola natalensis natalensis	Natal Grass-Warbler.
Chlorodyta neglecta	Black-Breasted Bush-Warbler.
Sphencœachus natalensis	Natal Grass-Bird.

48. PYCNONOTIDÆ

Pycnonotus tricolor layardi	Black-Capped Bulbul.
Andropadus importunas noomei	Sombre-Capped Bulbul.
Chlorocichla flaviventris	Yellow-Bellied Bulbul.

Phyllastrephus flavostriatus flavostriatus	Yellow-Streaked Bulbul.
Phyllastrephus terristris	Scrub Bulbul.

49. TURDIDÆ

Turdoides jardinii	Jardine's Babbler.
Turdoides bicolor	Pied Babbler.
Geokichla litsipsirupa litsipsirupa	Ground-Scraper Thrush.
Turtur libonyanus libonyanus	Kurrichaine Thrush.
Saxicola familiaris	Familiar Chat.
Thamnolæa arnotti	Arnot's Bush Chat.
Cossypha natalensis	Natal Robin-Chat.
Cossypha heuglini subrufescens	Heuglin's Robin-Chat.
Cossypha caffra caffra	Cape Robin-Chat.
Bessonornis humeralis	White-Shouldered Robin-Chat.
Tarsiger stellatus	White-Starred Bush-Robin.
Erythropygia barbata quadrivirgata	Rufous-Breasted Ground-Robin.
Lioptilus nigricapillus	Bush Black-Cap.

50. PRINIIDÆ

Prinia mistacea tenella	Tawny Flanked Wren-Warbler.
Prinia maculosa hypoxantha	Saffron-Breasted Wren-Warbler.

51. ZOSTEROPIDÆ

Zosterops senegalensis	White Eye.
Zosterops virens virens	Green White-Eye.

52. PROMEROPIDÆ

Promerops cafer gurneyi	Long-Tailed Sugar-Bird.

53. NECTARMIIDÆ

Nectarinia famosa famosa	Malachite Sunbird.
Cinnyris mariquensis mariquensis	Mariqua Sunbird.
Cinnyris venustus	Buff-Chested Sunbird.
Cinnyris leucogaster	White-Breasted Sunbird.
Cinnyris chalybeus subalaris	Natal Double - Collared Sunbird.
Cinnyris afer	Greater Double-Collared Sunbird.
Chalcomitra senegalensis gutturalis	Scarlet-Chested Sunbird.
Chalcomitra amethystina amethystina	Amethyst Sunbird.
Chalcomitra olivacea olivacea	Olive Sunbird.
Chalcomitra veroxii	Mouse-Coloured Sunbird.
Anthreptes collaris collaris	Collared Sunbird.

54. MOTACILLIDÆ

Macronyx croceus croceus	Yellow-Throated Long-Claw.
Anthus caffer caffer	Lesser Tawny Pipit.
Anthus lineiventris	Striped Yellow - Tipped Pipit.

Anthus brachyurus	Short-Tailed Pipit.
Motacilla aguimp vidua	Pied Wagtail.
Motacilla clara	Grey-Backed Wagtail.
Motacilla capenis capensis	Cape Wagtail.

55. ALAUDIDÆ

Eremopterix leucotis smithi	South African Sparrow-Lark.
Tephrocorys cinerea	Red-Capped Lark.
Mirafra africana	Rufous-Naped Lark.
Mirafra fischeri	Flappet Lark.

56. FRINGILLIDÆ

Passer griseus diffusus	Grey-Headed Sparrow.
Serinus mozambicus mozambicus	Yellow-Fronted Canary.
Serinus sulphuratus sulphuratus	Brimstone Canary.
Serinus canicollis	Cape Canary.
Serinus scotops	Sundevall's Canary.
Emberiza flaventris flaventris	Golden-Breasted Bunting.
Frangillaria tahapisi tahapisi	Cinnamon-Breasted Rock Bunting.

57. PLOCEIDÆ

Hyphantornis nigriceps	Black - Headed Weaver-Bird.
Ploceus velatus	Masked Weaver-Bird.
Ploceus subaureus	Smith's Golden Weaver-Bird.
Ploceus spinolotus	Yellow-Crowned Weaver-Bird.
Ploceus ocularius	Spectacled Weaver-Bird.
Ploceus xanthrops jamesoni	Jameson's Weaver-Bird.
Ploceus bicolor	Dusky - Backed Weaver-Bird.
Anaplectes rupriceps	Red-Headed Weaver.
Bubalornis niger	Buffalo Weaver.
Amblyospiza albifrons albifrons	Thick-Billed Weaver.
Pytilia melba	Red-Faced Weaver Finch.
Mandingoa nitidula nitidula	Green-Backed Twin-Spot.
Lagonosticta rubricata rubricata	Cape Fire-Finch.
Lagonosticta rubricata jamesoni	Matabele Fire-Finch.
Coecopygia melanotis	Yellow-Bellied Waxbill.
Estrilda perreini incana	South African Grey Waxbill.
Uræginthus angolensis niassensis	Blue-Breasted Waxbill.
Granatina granatina	Grenadier Waxbill.
Estrilda subflava clarkei	Zebra Waxbill.
Hypochera chalybeata amauropteryx	Green Indigo-Bird.
Hypochœra funerea funerea	Dusky Indigo Bird.
Quelea quelea	South African Dioch.
Amaurestes fringilloides	Magpie Mannikin.

Spermestes cucullatus scutatus	Hooded Mannikin.
Spermestes nigriceps nigriceps.....	Brown-Backed Mannikin.
Pyromelana taha taha.....	Taha Bishop Bird.
Pyromelana orix orix	Red Bishop Bird.
Pyromelana capensis.....	Yellow Bishop Bird.
Anamalospiza imberbis imberbis	Cuckoo Weaver.
Urobrachya axillaris	Fan-Tailed Widow-Bird.
Coliuspasser albonotatus.....	White-Winged Widow-Bird.
Vidua macroura	Pin-Tailed Widow-Bird.
Steganura paradisea paradisea.....	Paradise Widow-Bird.

58. STURNIDÆ

**Creotophora carunculata*	Wattled Starling.
Pholidanges verreauxi.....	Violet-Beaked Starling.
Lamprotornis australis	Burchell's Glossy Starling.
Lamprocolius nitens bispecularis.....	Red - Shouldered Glossy Starling.
Lamprocolius caruscus caruscus	Black - Bellied Glossy Starling.

59. BUPHAGIDÆ

Buphagus erythrorhynchus.....	Red-Billed Oxpicker.

60. ORIOLIDÆ

Oriolus larvatus	Golden Oriole.

61. DICRURIDÆ

Dicrurus adsimilis adsimilis.....	Fork-Tailed Drongo.
Dicrurus ludwigii ludwigii	Square-Tailed Drongo.

62. CORVIDÆ

Corvus albus.....	Pied Crow.

FLORA

FOREST TREES

1. ACANTHACEÆ

Adina galpini	African Teak.
Burchellia capensis	Wild Pomegranate.
Gardenia gerrardiana	Wild Gardenia.
Gardenia thumbergia.....	Wild Gardenia.
Oxyanthus gerrardi	Whip-Stick Tree.
Pavetta lanceolata	Christmas Tree.
Tricalysia lanceolata	Wild Coffee.
Vangueria infausta	Wild Medlar.

2. ANACARDIACEÆ

Harpephyllum caffrum	Kaffir Plum.
Rhus sp.	Wild Currant.
Sclerocarya caffra	Marula.

3. ANONACEÆ

Anona senegalensis	Wild Custard Apple.

APPENDIX

4. APOCYNACEÆ

Conopharyngia elegans ..... Kahla.
Rauwolfia caffra ..... Quinine Tree.

5. AQUIFOLIACEÆ

Ilex mitis ..... Water Tree.

6. ARALIACEÆ

Cussonia natalensis..... Natal Cabbage Tree.
Cussonia paniculata ..... Cabbage Tree.

7. BIGNONIACEÆ

Kigelia pinnata ..... Sausage Tree.

8. BOMBACACEÆ

Adansonia digitata ..... Baobab or Cream of Tartar Tree.

9. BARRAGINACEÆ

Ehretia hottentotica ..... Stamperwood.
Ehretia amœna ..... Stamperwood.

10. BURSERACEÆ

Commifora africana ..... African Corkwood.
Commifora caryæfolia..... Hlunguti Corkwood.
Commifora harveyi ..... Harvey's Corkwood.

11. CAPPARIDACEÆ

Capparis albitrunca ..... Wit-Gat Boom.
Mærua caffra..... Wit-Hout Boom.

12. COMPOSITÆ

Brachylæna sp. ..... Vaalbosch.

13. CORNACEÆ

Curtisia faginea..... Assagai Wood.

14. COMBRETACEÆ

Combretum apiculatum ..... Bush Willow.
Combretum erythrophyllum..... Rooibos.
Combretum galpini ..... Rooiblaar.
Combretum imberbe ..... Leadwood.
Combretum kraussii ..... Bush Willow.
Combretum lydenburgianum..... Lydenburg Willow.
Combretum porphyrolepis ..... Low-Veld Willow.
Combretum salicifolium ..... Umdubu.
Combretum spiculatum ..... Sabi Willow.
Combretum zuluense ..... Zulu Willow.
Combretum tenuipes ..... Bush Willow.
Combretum transvaalense ..... Rodeblad.
Combretum zeyheri ..... Rooibos.
Terminalia sericea..... Vaalboom.
Terminalia phanerphlebia ..... Bastard Yellow-Wood.
Terminalia prunoides ..... Vaalbos.

15. EBENACEÆ

Diospyros mespiliformis	Transvaal Ebony.
Maba natalensis	Smalblad.

16. EUPHORBIACEÆ

Androstachys johnsoni	Umzimbiti.
Antidesma venosum	Shonga.
Croton zambesiacus	Croton.
Drypetes arguta	Bastard White-Ironwood.
Euphorbia candelabra	Candelabra Tree.
Spirostachys africanus	Tambootie.

17. FLACOURTIACEÆ

Doryalis caffra	Kei Appel.
Doryalis zeyheri	Wild Apricot.
Kiggelaria africana	Wild Peach.
Oncoba spinosa	Tongwaan.
Trimeria grandifolia	Wild Mulberry.

18. GUTTIFERÆ

Garcinia gerrardi	Ebony.

19. LEGUMINOSÆ

Acacia albida	White Acacia
Acacia ataxcantha	Slender Acacia.
Acacia benthami	Gum Acacia.
Acacia burkei	Aapies-Doorn.
Acacia caffra	Kat-Doorn.
Acacia catechu	Wit-Doorn
Acacia delagoaensis	Delagoa Acacia.
Acacia eriadenia	Wit-Doorn.
Acacia gerrardi	Rooidoorn.
Acacia heteracantha	Impala Thorn.
Acacia hirtella	Bristly Acacia.
Acacia karroo	Doorn-Boom.
Acacia lasiopetala	Kamba.
Acacia litakunensis	Bastard Kameel-Doorn or Umbrella Thorn.
Acacia natalita	Natal Acacia.
Acacia pallens	Knoppies-Doorn.
Acacia robusta	Small-Thorn or Mngamanzi.
Acacia xanthlophlœa	Fever Tree.
Acacia zambesiaca	Zambezi Thorn.
Afzelia cuanenzensis	Rhodesian Mahogany.
Albizzia fastigiata	Flat-Crown.
Albizzia mossambicensis	Impesha.
Albizzia versicolor	Baganzi.
Baphia racemosa	Violet Pea.
Bauhinia reticulata	Picture Frame Tree.
Bolusanthus speciosus	Elephant-Wood.
Burkea africana	Wild Seringa.

Cassia abbreviata	Heartwood.
Copaifera mopani	Mopani.
Distrostachys nutans	Bastard Acacia.
Erythrina caffra	Kaffir-Boom.
Erythrina tomentosa	Cork Tree.
Lonchocarpus capassa	Panda or Umbandu.
Millettia caffra	Kaffir Ironwood.
Peltophorum africanum	Rhodesian Black-Wattle.
Pterocarpus angolensis	Transvaal Teak or Kajatenhout.
Schotia brachypetala	Boerboen.
Schotia tranvaalensis	Boerboen.
Brachystegia sp.	Umtundu.

20. LOGANIACEÆ

Anthocleista zambesiaca	Big-Leaf.
Nuxia dentata	Streak-Wood.
Strychnos dysophylla	Umkwakwa.
Strychnos gerrardi	Umkwakwa.
Strychnos pungens	Yellow Kaffir Orange.
Strychnos schumannia	Gift Klopper.
Strychnos spinosa	Kaffir Orange or Klopper.

21. MELIACEÆ

Trichilia emetica	Cape Mahogany or Umkuhlu.

22. MELIANTHACEÆ

Greyia radlkoferi	Wild Bottle-Bush.

23. MONIMIACEÆ

Xymalos monospora	Wild Lemon.

24. MORACEÆ

Ficus burkei	Lesser Fig-Tree.
Ficus capensis	Cape Fig.
Ficus cordata	Melk-Boom.
Ficus exasperata	Sand-Paper Fig.
Ficus gnaphalocarpa	Rubber Fig.
Ficus ingens	Glabrous Fig.
Ficus mallotocarpa	Bastard Sycamore.
Ficus natalensis	Wild Fig.
Ficus petersii	Peters' Fig.
Ficus soldanella	Rooi-Touw.
Ficus sonderi	Rock Fig.
Ficus stuhlmanni	Wilde Fijg.
Ficus sycamorus	Sycamore Fig.

25. MYRTACEÆ

Eugenia cordata	Waterberry or Water Bosche.
Eugenia owarensis	Water Peer.

26. OLACACEÆ

Ximenia caffra ..... Sour Plum.

27. OLEACEÆ

Olea verrucosa ..... Wild Olive.
Olea faveolata ..... Bastard Ironwood.

28. POLYGALACEÆ

Securidaea longipedunculata ..... Fibre Tree.

29. PROTEACEÆ

Faurea galpini ..... Rooi Beukenhout.
Faurea saligna ..... Beukenhout.
Protea sp. ..... Sugarbush.

30. RHAMNACEÆ

Rhamnus zeyheri ..... Red Ivory.
Zizyphus mucronata ..... Buffalo Thorn.

31. ROSACEÆ

Pygeum africanum ..... Bitter Almond.
Parinarium mobola ..... Mobola Plum or Grys Appel.

32. RUTACEÆ

Toddalia lanceolata ..... White Ironwood.
Xanthoxylum capense ..... Knob-Wood or Paarde Pram.

33. SAPINDACEÆ

Sapindus oblongifolius ..... Masibele.
Schmidelia sp. ..... Tatasane.

34. SAPOTACEÆ

Chrysophyllum megalismontanum .... Stamvrugte.
Chrysophyllum natalense ..... Natal Plum.
Mimusops marginata ..... Flat-Cap
Sideroxylon inerme ..... White Milk-Wood.

35. SIMABUREÆ

Balanites maughami ..... Torch Fruit.

36. SIMARUBACEÆ

Kirkia wilmsii ..... Bastard Pepper Tree.

37. TILIACEÆ

Grewia cana ..... Kleinbessie.

38. ULMACEÆ

Celtis ramnifolia ..... Stink-Wood.
Trema brachteolata ..... Pigeon-Wood.

39. PALMÆ

Hyphœne crinita ..... Ilala or Fan Palm.
Phœnix reclinata ..... Isundu or Feather Palm.
Raphia sp. ..... Raphia Palm.
Borassus flabellifer var. ..... Palmyra or Run Palm.

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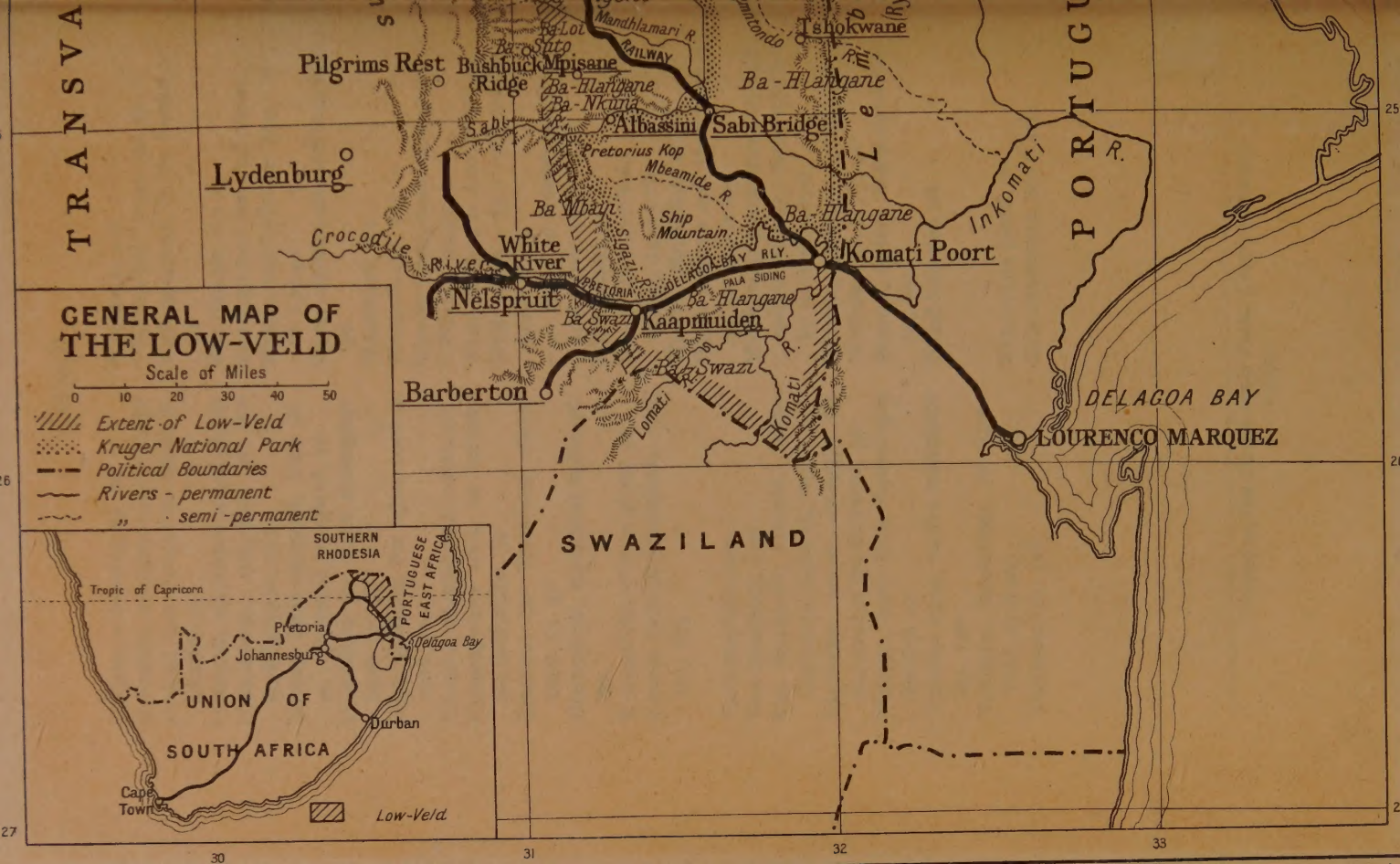
GENERAL MAP OF
THE LOW-VELD
Scale of Miles
0 10 20 30 40 50
Extent of Low-Veld
Kruger National Park
Political Boundaries
Rivers - permanent
" semi-permanent
TRANSVA
PORTUGU
SWAZILAND
DELAGOA BAY
LOURENCO MARQUEZ
Pilgrims Rest
Bushbuck Ridge
Mpisane
Ba-Loi
Ba-Suto
Ba-Hlangane
Ba-Nkuna
Mandhlamari R.
RAILWAY
Tshokwane
Ba-Hlangane
Albassini
Sabi Bridge
Sabi
Pretorius Kop
Mbeamide R.
Lydenburg
Ba Mbayi
Ship Mountain
Ba-Hlangane
Inkomati R.
Crocodile River
White River
Sigazi R.
DELAGOA BAY RLY.
Komati Poort
PRETORIA
PALA SIDING
Nelspruit
Ba-Hlangane
Ba Swazi
Kaapmuiden
Ba Swazi
Barberton
Lomati R.
Komati R.
SOUTHERN RHODESIA
PORTUGUESE EAST AFRICA
Tropic of Capricorn
Pretoria
Johannesburg
Delagoa Bay
UNION OF SOUTH AFRICA
Durban
Cape Town
Low-Veld
30
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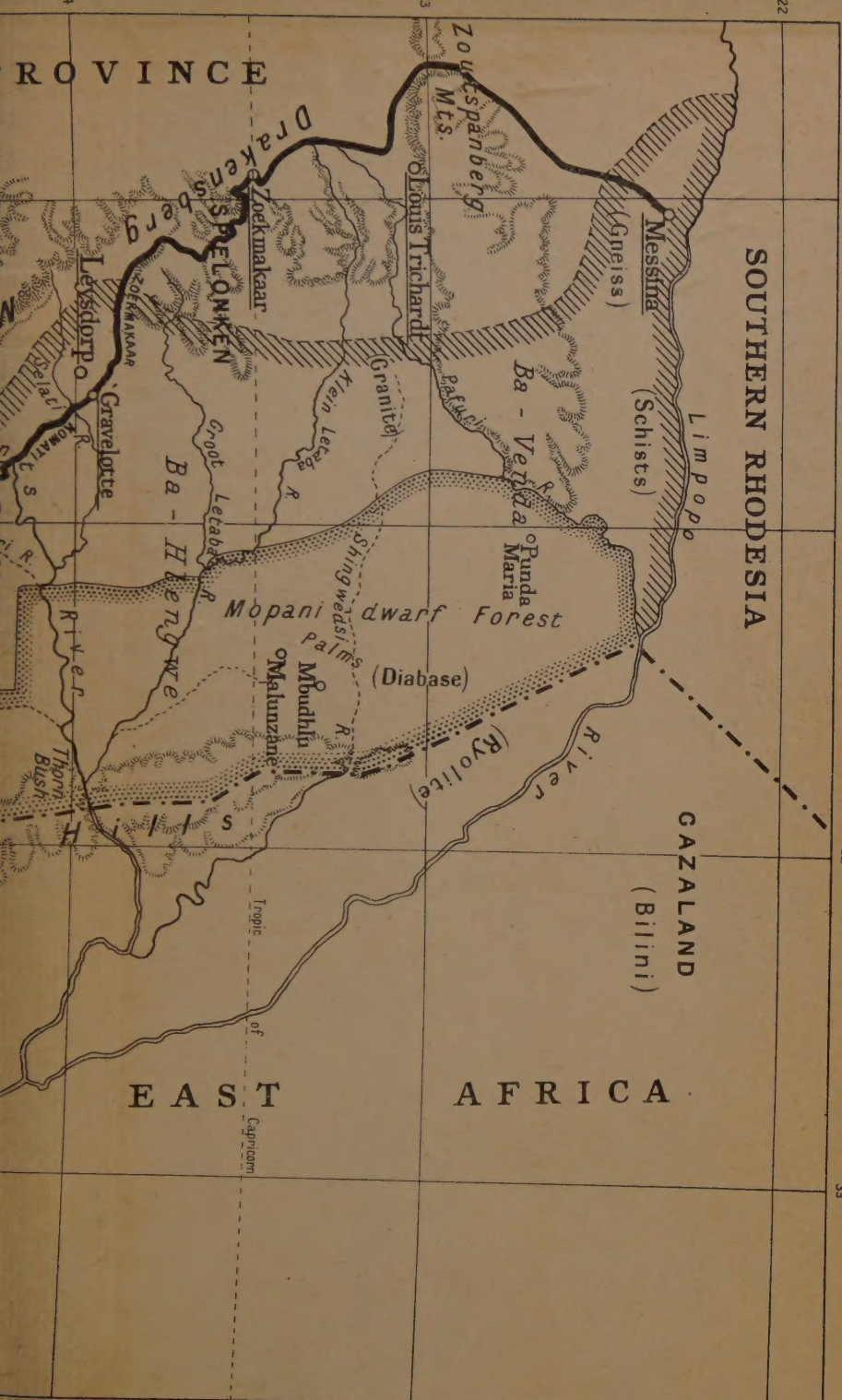
27



ROVINCE
SOUTHERN RHODESIA
GAZALAND
(Bilini)
EAST AFRICA
Drakensberg
Zoutspanberg Mts.
Zoekmakaar
SPELONKEN
Louis Trichardt
Messina
(Gneiss)
(Schists)
Limpopo
Levsdorp
ZOEKMAKAAR
Gravelotte
KOMATI
Selati R.
Ba - Hlengwe
Groot Letaba R.
Klein Letaba R.
(Granite)
Pafuri R.
Ba - Venda
Punda Maria
Mopani dwarf Forest
Shingwedsi R.
Palms
(Diabase)
Mbudhlu
Malunzane
(Ryolite)
River
Thorn Bush
Hills
Tropic of Capricorn

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